

A BASIC LIST OF THE LAND MOLLUSCA OF PAPUA.

By TOM IREDALE.

(*Contribution from the Australian Museum, Sydney, New South Wales.*)

(Plates iii. and iv.)

The occurrence in North Queensland of land mollusca of undoubted Papuan relationship necessitated criticism of Papuan material. The Rev. H. T. Williams, a few years ago, brought in a series of shells from the Trobriand Islands, and these were set on one side, the nature of the fauna being at that time unfamiliar. Recently, the Rev. H. K. Bartlett presented a series from Misima (St. Aignan) and other islands of the Louisiade Group, and has undertaken the collection of more material. The time, therefore, becomes opportune to bring the data regarding the Papuan fauna into line with that of Australia, as nothing is available since Hedley's list fifty years ago. My talented predecessor, Charles Hedley, initiated his brilliant malacological career with a study of the Papuan Land Mollusca, having made a large collection himself, and this local knowledge counteracted his lack of experience. Since his list was prepared small collections have come to hand, and these are here brought under review, but the present List must be regarded as purely a basic effort, our knowledge of the vast area being still very slight. It has been a difficult task even to compile such a list as many species were described as from "New Guinea", an absolutely meaningless term, considering the size of that huge island, with the fact that there are three different faunal areas included in the island. Although at one time Papua was used for the whole island, this is now the official name of the south-eastern portion only, formerly known as British New Guinea; to the west is Dutch New Guinea and to the north is the Territory of New Guinea, formerly known as German New Guinea. Hedley wrote "(Papua) comprises the south-eastern quarter of (New Guinea) with the adjacent reefs and islands, except those falling within the Queensland boundary, between the meridians of 141° and 155° of E. Long., and the parallels of 8° and 12° of S. Lat. Though these political boundaries do not form the natural limits of the fauna. . . . The land shells of the province exhibit four rather distinct geographical divisions:—(a) The alpine fauna. (b) That region lying between Port Moresby and the Fly River. (c) South Cape Island, and includes all the eastern extremity of New Guinea with the outlying islands adjacent, and (d) The Louisiade, Dentrecasteaux, Trobriand and Woodlark Archipelagos".

Collections now available show that the last three merge, while the alpine fauna is still unknown, and that, contrary to Hedley's conclusion, the political boundaries in this case coincide quite closely with the natural distribution of the fauna. Thus the western fauna flows down the north coast, and a few species penetrate into Papua, but these are easily recognisable, while on the other hand only a very few of the western Solomon Island groups reach into the eastern limits of the Papuan island appanages.

It may be noted that some sixty years ago, Tapparone-Canefri listed the land and freshwater molluscs of New Guinea, and only two hundred and nine species of land shells were recognised. Hedley gave a review of the collectors up to 1890, and since then only desultory collections have

been made, none of much extent. Over one hundred years ago, G. B. Sowerby, Jr., wrote (Conch. Man. Introd., p. v., 1839): "Let none be discouraged by the number of generic distinctions created in modern times; for, if well defined, they will be found to facilitate rather than encumber the study. The knowledge of species must be the foundation of every system, and the greater the number of species, the greater is the necessity for systematic distinctions. . . . Every well marked division, however arbitrary its limits, tends to simplify the subject, and to facilitate the researches of the student".

Now there has just come to hand an excellent list of British Non-Marine Mollusca, by A. S. Kennard, and therein it is noted that the true Helicids, only twenty-three species, are separated into no fewer than sixteen genera. How many divisions will later be utilised in connection with this and the Australian Land Mollusca cannot even be guessed at, especially as these localities incorporate distinct faunal elements, and the fauna is not in any sense homogeneous, as the British Land Mollusca is. Anatomical study will apparently be responsible for much of the splitting, as evidenced by the recent account of Zonitid Shells from the Pacific Islands, by Burring-ton Baker, wherein the only blot appears to be due to the struthionine subterfuge of the nomination of subgenera extensively. When the shells so differentiated are examined by a conchologist it becomes evident that much more splitting must be undertaken by the latter to keep abreast of the anatomist. It also seems evident that unless the anatomist has a lead from the conchologist he is generally unable to form any definite conclusion as to the relationship of the molluscan animal he has so meticulously dissected.

Class GASTROPODA.

Subclass PROSOBRANCHIA.

Order PECTINIBRANCHIA.

Family HYDROCENIDAE.

Genus DRAMELIA *nov.*

Type, *Realia isseliana* Tapparone-Canefri.

Shell very small, conical, perforate, whorls rounded, mouth subcircular, almost free. The generic name *Realia* cannot be maintained here as it is the correct name for a group, usually called *Omphalotropis*, as hereafter shown. The Neozelanic group recently known as *Realia* will bear the name *Liarea*, and this has nothing to do with the present species.

DRAMELIA ISSELIANA Tapparone-Canefri, 1883.

1883. *Realia isseliana* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 271, pl. 10, figs. 12-13 (dated July 14). Wokan Is., Aru.

This has been recorded from the Purari Valley, Papua.

Family HELICINIDAE.

Many forms of Heliciniids have been recorded under the generic name *Helicina*, and through this lumping usage there has been great confusion of species. An attempt is here made to group them more accurately, but owing to the very poor monographic accounts available, this is open to later emendation, and many more species will be added.

Wagner's Monograph is so inaccurate that it is more troublesome than useful, as evidenced by the omissions pointed out by Fulton (Proc. Malac.

Soc. (Lond.), Vol. xi., pp. 237-241, March 29, 1915, and id. ib., pp. 324-326, August 20, 1915).

Genus PALAEOHELICINA Wagner, 1905.

1905. *Palaeohelicina* Wagner, Denkschr. k. akad. Wissen. Wien., Math.-Nat. Class, Vol. lxxvii., p. 435. Logotype, Ired., Austr. Zool., viii., p. 292, 1937. *H. fischeriana* S. & M.
1905. *Rhabdokonia* id. ib. Same type.

PALAEOHELICINA FISCHERIANA Souverbie & Montrouzier, 1863.

1863. *Helicina fischeriana* Souverbie & Montrouzier, Journ. de Conch., Vol. xi., p. 76, January 1; id., p. 171, pl. 5, fig. 3, April 1. Woodlark Is.
1866. *Helicina carinifera* Sowerby, Thes. Conch., Vol. iv., p. 295, fig. 431 (as *carinata* Orbigny). Woodlark Is.
1873. *Helicina carinifera* Sowerby, Conch. Icon. (Reeve), Vol. xix., pl. xxvii., p. 241 (as of Orbigny), December. Woodlark Is.

PALAEOHELICINA INSULARUM Hedley, 1891.

1891. *Helicina insularum* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 113, pl. xii., pls., fig. 44, September 9. Sudest Is., Louisiades.
1905. *Palaeohelicina fischeriana lampra* Wagner, Denkschr. akad. Wissen. Wien., Vol. 77, p. 436. Louisiades (as synonym Wagner, Syst. Conch. Cab. (cont. Kuster), Bd. I., Abth. 18, p. 246, 1909.

PALAEOHELICINA CONGENER Smith, 1889.

1889. *Helicina congener* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 203, pl. 13, fig. 17, September. Misima, Louisiades. The figure of *Helicina tecta* Sowerby, Thes. Conch., Vol. iii., p. 295, fig. 434, 1866, is suspiciously like this species.

PALAEOHELICINA PHRONEMA Wagner, 1905.

1905. *Palaeohelicina fischeriana phronema* Wagner, Denkschr. akad. Wissen. Wien., Vol. 77, p. 436, pl. ix., figs. 11a, b, c. Fergusson Is.
1909. *Palaeohelicina fischeriana elegans* Wagner, Syst. Conch. Cab. (Mart. & Chemn.), cont. Kuster, Bd. I., Abth. 18, p. 245, pl. 48, fig. 13. Fergusson Is. (*phronema* figd. id. ib., pl. 48, figs. 11-12).

PALAEOHELICINA NOVOGUINEENSIS Smith, 1887.

1887. *Helicina novoguineensis* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 425, pl. 15, figs. 11, 11a, June. Foot of Owen Stanley Mountains, New Guinea: id. ib., Ser. 6, Vol. iv., p. 203, pl. 13, fig. 17.

PALAEOHELICINA VOCATOR *sp. nov.*

Specimens from Maneao, N.E. Papua, are true *Palaeohelicina*, differing in form from the nearest species, *P. phronema*, being 16 mm. broad by 12 mm. high, instead of 20 mm. by 14 mm., with much coarser sculpture. The coloration is that typical of the genus, but the red markings are not very pronounced.

Genus KALOKONIA Wagner, 1909.

1909. *Kalokonia* Wagner, Syst. Conch. Cab. (Mart. & Chemn.), cont. Kuster, Bd. I., Abth. 18, p. 238, dated 15/6/1909. Type, here selected, *Helicina moquiniana* Recluz.

KALOKONIA LOUISIADENSIS Forbes, 1851.

1851. *Helicina louisiadensis* Forbes, Voy. Rattlesnake, Vol. ii., p. 382, pl. iii., figs. 5a-b., "1852" = December, 1851. Round Is., Coral Haven, Calvados Chain.

KALOKONIA WOODLARKENSIS Smith, 1891.

1891. *Helicina woodlarkensis* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. vii., p. 138, January. Woodlark Is. Paratype figured by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 114, pl. xii., bis., fig. 46, 1891.

Genus SPHAEROCONIA Wagner, 1909.

1909. *Sphaeroconia* Wagner, Syst. Conch. Cab. (Mart. & Chemn.), cont. Kuster, Bd. I., Abth. 18, p. 189 (dated January 25). Logotype (Ired., Austr. Zool., viii., p. 292, 1937), *Helicina sphaeroconus* Möllendorff.

SPHAEROCONIA STANLEYI Forbes, 1851.

1851. *Helicina stanleyi* Forbes, Voy. Rattlesnake, Vol. ii., p. 381, pl. 3, figs. 4a-b, "1852" = December, 1851. Duchateau Is., Louisiades.

Note: Wagner (Denkschr. akad. Wissen. Wien., Vol. 77, p. 438, pl. ix., figs. 17a-b, 1905) described and figured specimens from Mailu, north of Orangerie Bay, Papua, under this name, tall banded specimens, measuring 6.2 mm. x 4.4 mm., and this mainland form may be called *Sphaeroconia superflua* sp. nov.

SPHAEROCONIA ROSSELENSIS Hedley, 1891.

1891. *Helicina rosseleensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 113, September 9. Rossel Is., Louisiades.

1909. *Palaeohelicina stanleyi rosseleensis* Wagner, Syst. Conch. Cab. (Mart. & Chemn.), cont. Kuster, Bd. I., Abth. 18, p. 251, pl. 50, fig. 23 (dated May 4).

1905. *Palaeohelicina filiae* Wagner, Denkschr. akad. Wissen. Wien., Vol. 77, p. 439, pl. ix., figs. 14a, b, c. "Louisiades" = Rossel Is.

SPHAEROCONIA TROBRIANSENSIS Hedley, 1891.

1891. *Helicina trobriandensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 113, September 9. Trobriand Is.

SPHAEROCONIA MURUENSIS Hedley, 1891.

1891. *Helicina muruensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 113, September 9. Woodlark Is.

SPHAEROCONIA EDUARDI Wagner, 1905.

1905. *Aphanoconia eduardi* Wagner, Denkschr. akad. Wissen. Wien., Vol. 77, p. 393, pl. iv., figs. 17a, b, c. Louisiades = Sudest Is., fide Conch. Cab., Bd. I., Abth. 18, p. 203, 1909.

SPHAEROCONIA SINUS Hedley, 1891.

1891. *Helicina sinus* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 113, pl. xii., bis., fig. 45, September 9. Mita, Milne Bay, Papua.

SPHAEROCONIA DENTONI Pilsbry, 1890.

1890. *Helicina dentoni* Pilsbry, Proc. Acad. Nat. Sci. Philad., 1890, p. 186, July 29. British New Guinea (Denton) = Port Moresby district.

1887. *Helicina solitaria* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 425, pl. 15, fig. 10, June. Foot of Astrolabe Mountains; refigured from Eafa district, 5,000-6,000 ft., Smith, Journ. Malac., Vol. v., p. 22, pl. ii., fig. 15, 1896. Not *Helicina solitaria* C. B. Adams, Pr. Bost. Soc. N.H., p. 12, 1845.

1906. *Palaeohelicina hara* Wagner, Denkschr. akad. Wissen. Wien., Vol. 78, p. 204, pl. x., figs. 18a, b, c. British New Guinea.

SPHAEROCONIA COXENTI Brazler, 1876.

1876. *Helicina coxeni* Brazler, Proc. Linn. Soc. N.S.W., Vol. i., p. 111, July

2. Yule Is. Figd. Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 274, fig. g in text, and pl. ix., figs. 12-13, 1883.

SPHAEROCONIA MAINO Brazier, 1876.

1876. *Helicina maino* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 115, July. Katow, Brit. New Guinea. Type figured by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 115, pl. xii., bis., fig. 47, 1891.

SPHAEROCONIA REGESTA *sp. nov.*

Nearest *S. coxeni* Brazier, geographically, but smaller, flatter and with coarser sculpture, twelve ridges on the last whorl above the periphery, while there are about twenty on *coxeni*, the ridges also being more regularly spaced. The type from Purari Valley, Papua, measures 12 mm. broad and 8 mm. high. The colour is pale creamish with the apical whorls lemon yellow.

Genus NEGOPENIA *nov.*

Type, *Negopenia leucostoma idesa* subsp. *nov.*

This peculiar little Helicinid has an elevated spire, whorls smooth, convex, mouth not very oblique, angulate at the columella, umbilical pad small and finely punctate, operculum thin, a little concave externally.

NEGOPENIA LEUCOSTOMA IDESA *subsp. nov.*

Tapparone-Canefri (Ann. Mus. Civ. Genova, Vol. xix., *H. leucostoma*, p. 277, fig. in text, 1883 (dated July 14)), described and figured *Helicina leucostoma* from New Guinea, and Hedley recorded it from Purari Valley, Papua. The latter specimen, while apparently congeneric and conspecific, differs a little in size, the striation obsolete, measuring 5 mm. by 5.5 mm., the spire broader and the sutures less impressed.

Genus PECOVIANA *nov.*

Type, *Helicina multicoronata* Hedley.

The bristly periostracum differentiates this from all other local Helicinids, and is associated with smooth callus, with operculum with almost central nucleus; the small size and globosely conical form also separate it from other Papuan groups.

PECOVIANA MULTICORONATA Hedley, 1891.

1891. *Helicina multicoronata* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 115, pl. xii., bis., fig. 48, September 9. Mita, Milne Bay, Papua.

Hedley also recorded this species from the Purari Valley, which suggests that the genus is widely spread in Papua.

Note: Many queries still persist in the determination of Helicinids through locality and other errors. Thus *Helicina suprafasciata* was described by Sowerby (Conch. Icon. (Reeve), Vol. xix., pl. 30, sp. 300, February, 1874, from Australia), and Hedley reported that Smith, from comparison of the type, had identified it as *insularum*, and that Australia was thus incorrect. He added a tale from Brazier as to the comparison, but the description and figure do not agree with *insularum*, being more like that of the *sinus* series. Wagner omitted the species altogether, so that until the group is studied more accurately, the name *suprafasciata* can be omitted from this fauna. Again, *Sulfurina* was proposed by Möllendorff, Ber. Senckenb. Ges., p. 141, June-October, 1893, with orthotype, *Helicina citrina* Grateloup, measuring 14.5 mm. by 8.5 mm., from the Is. of Luzon, Philippines.

Genus *PESTOMENA* nov.Type, *Sulfurina jickelii* Wagner.

This small shell, measuring 3.5 mm. by 2.2 mm., was noted by Wagner himself as not a typical *Sulfurina*, being more globose, the whorls more convex, the basal angulation obsolete and the sculpture a little reticulate.

PESTOMENA JICKELII Wagner, 1905.

1905. *Sulfurina jickelii* Wagner, Denkschr. akad. Wissen. Wien., Vol. 77, p. 381, pl. iv., figs. 1a, b, c. Stirling Range, Brit. New Guinea.

Family CYCLOPHORIDAE.

Thiele's family of this name is a curious agglomeration of true Cyclophorids, many pseudo-Cyclophorid groups with Pupinids and Diplomatinitids and a few other series. The family name is here used for the restricted Cyclophorus-like forms.

Genus *LEPTOPOMA* Pfeiffer, 1847.

1847. *Leptopoma* Pfeiffer, Zeitschr. für Malak., 1847, p. 47, March. Logotype, Kobelt. Illustr. Conchylienbuch, p. 194, 1878, *Leptopoma vitreum* Lesson, s. *nitidum* Sowerby.
1855. *Dermatocera* H. and A. Adams, Gen. Rec. Moll., Vol. ii., p. 282, November. Logotype, *Leptopoma vitreum* Lesson.

LEPTOPOMA NITIDUM Sowerby, 1843.

1843. *Cyclostoma nitidum* Sowerby, Thes. Conch., Vol. i., p. 133, pl. xxix., figs. 225-227, ante June 23. Is. of Guinaras and Zebu, Philippine Islands.

Many forms of this style will later be differentiated as series show local variation. This is the group known as *vitreum* Lesson, but Lesson's choice was invalid through preoccupation.

Thus a series from Misima is composed of large broad shells, measuring 18 mm. in breadth, by 19.5 mm. in height, whilst in another from Tube Tube, Engineer Group, the average is 15 mm. broad by 17 mm. high, the smaller one showing more peripheral keeling and much stronger sculpture. These may be named as *L. n. sanctum* subsp. n., and *L. n. faber* subsp. n., respectively as a beginning.

LEPTOPOMA GIANELLII Tapparone-Canefri, 1886.

1886. *Leptopoma gianellii* Tapparone-Canefri, Ann. Mus. Civ. Genova, Ser. 2, Vol. iv., p. 183, pl. 2, figs. 10-11 (dated July 6). Katau, Papua.

From the Purari Valley a similar specimen, measuring 10 mm. by 10 mm. has the form and horny operculum of *Leptopoma*, being subkeeled peripherally, the last whorl sculptured with rather distant delicate ridges, six or seven on the penultimate and antepenultimate, the apical whorls being similarly sculptured, red in colour, the body colour being fawn, mottled with darker.

This must be called *Leptopoma injectum* sp. nov.Genus *ETTEMONA* nov.Type, *Ettemona perspicua* sp. nov.

From the Purari Valley a shell of the same size as the preceding appears comparatively taller superficially, the whorls shouldered with the last whorl distinctly peripherally keeled, the base somewhat flattened, the umbilicus narrow, mouth almost circular, free, lip duplicate all round, sculpture of bristly ridges, the shoulder bearing three minor ridges, the base

showing a dozen finer ridges, the intervening part of the whorl with four strong ridges, coloration brown, apical whorls black. The operculum is circular, thin, horny, many whorled, the edges of the whorls slightly fringed. Recorded by Hedley (Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 386, pl. xxiv., figs. 2-4, December 10, 1894), under the name *Lagocheilus poirierii*, which only measures 7 mm. by 7 mm., with operculum unknown.

ETTEMONA POIRIERII Tapparone-Canefri, 1883.

1883. *Cyclotus* ? *poirierii* Tapparone-Canefri, Ann. Mus. Civ. Genova., Vól. xix., p. 254, pl. 10, figs. 6-7 (dated July 13). Fly River, Papua.

Family PSEUDOCYCLOTIDAE.

This family is provided to accommodate a series of New Guinea operculates, which according to anatomists are neither Cyclotids nor Cyclophorids. The true *Pseudocyclotus* has a shell agreeing in detail with that of *Leptopoma*, but with a different radula and operculum. From criticism of the latter, Thiele classed it next to *Omphalotropis*, a quaint solution.

Genus PSEUDOCYCLOTUS Thiele, 1894.

1894. *Pseudocyclotus* Thiele, Nachr. deutsch. Malak. Gesell., Year 26, p. 23, January-February No. Orthotype, *Cyclostoma novae-heriberniae* Quoy & Gaimard.
1885. *Adelostoma* Smith, Proc. Zool. Soc. (Lond.), 1885, p. 596, October 1, ex Tapparone-Canefri MS. Logotype, here selected, *Cyclotus tristis* Tapparone-Canefri. Not *Adelostoma* Duponchel, Mém. Soc. Linn. Paris, Vol. 6, p. 342, 1827 (Sherborn).
1886. *Adelomorpha* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xxiv., p. 165 (dated November 23). Logotype, here selected, *Cyclotus tristis* T.-C. Not *Adelomorpha* Snellen. Tijdsch. Ent., Vol. 28, p. 31, 1885 (Neave).

The shell is very like that of *Leptopoma* in every conchological feature, but is smaller and with more pronounced striae. The operculum, instead of being horny is calcareous, with the outer surface concave. The radula, according to Martens and Thiele, is of the Cyclostomatid form, rather than of the Cyclophorid. Obviously this is purely convergential. Hedley was inclined to lump all the species under the name *levis*, but the geographical forms should be kept separate.

PSEUDOCYCLOTUS TRISTIS Tapparone-Canefri, 1883.

1883. *Cyclotus tristis* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 255, pl. 10, figs. 4-5 (dated July 13). Fly River, Papua.

This is one of the smallest of the genus, measuring 5 mm. by 4 mm., narrower, and with more marked sculpture than the type.

PSEUDOCYCLOTUS PARVUS Hedley, 1891.

1891. *Leptopoma parvum* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 111, pl. xii., bis., fig. 43, September 9. Milne Bay, Papua.

This is larger than the preceding, measuring 6 mm. by 5 mm., while from the Purari Valley comes another, larger still, measuring 7 mm. by 5.5 mm., with the umbilicus wider and fainter sculpture, and may be called *P. exiguus* sp. nov.

A specimen from Mount Maneao, N.E. Papua, is very unlike *P. laeta* Möllendorff, from Astrolabe Bay, North Coast, being very small and tightly coiled, spire narrow, umbilicus almost hidden, measuring 5 mm. by 4.5 mm., and may be called *P. debilior* sp. nov.

Genus DOMINAMARIA nov.

Type, *Otopoma macgregoriae* Hedley.

The shell recalls that of *Leptopoma* in general features, but is covered with a fine pilose periostracum, spirally arranged in fine lines, recalling the sculpture of *Leptopoma*. The operculum internally is horny as in *Leptopoma*, but this is overlain by three layers of calcareous matter, the two inner vacuolar, the outer solid, the outer surface very concave, showing four whorls separated by deep channels, the inner pit depressed.

DOMINAMARIA MACGREGORIAE Hedley, 1894.

1894. *Otopoma macgregoriae* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 385, pls. xxiv. and xxv., figs. 5, 7, 20, December 10. Purari Valley, Papua.

DOMINAMARIA ADDITA sp. nov.

Shells with similar opercular characters to the preceding are smaller, more elevated, with the pilose periostracum overridden by a further longitudinal series of bristles, the shell being subkeeled, the keel bearing longer bristles. These come from the Fly River, and the largest measures 9 mm. in height by 7 mm. in breadth, a smaller one with operculum measuring 7 mm. in height by 5 mm. in breadth.

DOMINAMARIA HORRIDA Hedley, 1891.

1891. *Cyclotus horridus* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 108, pl. xii., bis., fig. 40, September 9. Milne Bay, Papua.

This has a similar operculum to the lastnamed, and has also the same style of sculpture and bristly ornament, but the shell is more uncoiled and flattened, measuring 9 mm. broad by 7 mm. high.

DOMINAMARIA FEREELEGANS sp. nov.

1896. *Cyclotus horridus* Smith, Journ. Malac., Vol. v., p. 20, pl. ii., figs. 16-18, June 25. North of Orangerie Bay, Papua (Anthony).

This species recalls the preceding, but is much larger, measuring 16-17 mm. in diameter, the bristles coarser and forming a median keel.

DOMINAMARIA BELFORDI Hedley, 1891.

1891. *Cyclotus belfordi* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 109, pl. xii., bis., fig. 42, September 9. Mita, Milne Bay, Papua.

DOMINAMARIA KOWALDI Hedley, 1891.

1891. *Cyclotus kowaldi* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 109, pl. xii., bis., fig. 41, September 9. Sudest Is., Louisiades.

These species may not be congeneric when the opercula are received, while none of them possess the basal spur of the type, so that subgenera may be constituted later for the two latter, while *Memonella* subg. n. is here introduced for *Dominamaria addita*, and *Atrocyclus* subgen. n. for *Cyclotus horridus* Hedley.

Family CYCLOTROPIDAE.

Thiele has placed *Cyclotropis* as a section of the European genus Paludinella, a member of the family Assimineidae, an absurd procedure. The genus was introduced by Tapparone-Canefri for a shell measuring 12 mm. in height by 7½ mm. in breadth, of "Omphalotropid" appearance, but with the spire sharply acute, body whorl very large, smooth, finely longitudinally striate, and a narrow umbilicus with marginal keel.

CYCLOTROPIS PAPUENSIS Tapparone-Canefri, 1883.

1883. *Cyclotropis papuensis* Tapparone-Canefri, Ann. Mus. Civ. Genova,

Vol. xix., p. 279, pl. 10, figs. 22-23 (dated July 14). Fly River, Papua.

Shells congeneric are at hand from the north-east coast, British New Guinea, that is Collingwood Bay, and these measure 10 mm. in height by 8 mm. broad, thus shorter and broader, and these may be called *C. rigens* sp. nov.

Family REALIIDAE.

This family name based on *Realia* Gray, not *Realia* of recent writers, must be used for the molluscs classed hitherto as *Omphalotropids*. *Realia* was first introduced by Gray in 1840 as a *nomen nudum*, and this nude usage continued in 1844 and 1847, but in the Proc. Zool. Soc. (Lond.), 1849, 167, he introduced it with a new species *egea* from New Zealand. This paper did not appear until June, 1850, and meanwhile Gray had published the name in the Figs. Mollusc. Anim., Vol. iv., p. 20 (which came out before June, 1850), in connection with two species only, *rubens* Quoy, and *erosa* Quoy. He gives the number allotted to the P.Z.S., 1847, p. 182, reference. Hence *Realia* must date from this entrance, and the type is selected as *rubens* Quoy. In a little book entitled Nomen. Moll. Anim. Brit. Museum, Pt. I., Cyclophoridae (with preface dated March, 1850, and issued June 12, according to Sherborn) *Realia* is included with nine specific names, the last one being *R. egea* with the incomplete reference of "P.Z.S., 1849". Pfeiffer was then engaged to prepare a Cat. Phaneropneum. Brit. Mus., and this was issued in 1852-53, the pref. date being September 16, 1852, and date of publication (Sherborn) February 12, 1853. In that place *Liarea* (p. 217) is introduced as a new name for *Realia egea*, and *Realia* is used for the other species, *rubens* being given as basis of Gray's earlier usage. This should be accepted, as Pfeiffer, at the same time, sank his own *Omphalotropis* as a synonym. A couple of years later Pfeiffer revoked, and his later usage has been incorrectly followed. *Omphalotropis* was also somewhat confusedly introduced in a list in the Zeitschr. für Malak., Year 8, No. 11, p. 176. Nov. with six species, the first *hieroglyphica* Fer., being here named as type. The list was continued the succeeding month, and one of the later named species has been often cited as type.

Genus STENOTROPIS Möllendorff, 1897.

1897. *Stenotropis* Möllendorff, Nachr. Malak. Gesell., Vol. xxix., p. 167, December 20. Logotype (here selected) *Omphalotropis* (sic) *ducalis* Möllend., ex Boettger MS. (Duke of York Is.).

STENOTROPIS BRAZIERI Hedley, 1891.

1891. *Omphalotropis brazieri* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 101, pl. xii., fig. 33, September 9. Milne Bay, Papua.

STENOTROPIS PROTRACTA Hedley, 1891.

1891. *Omphalotropis protracta* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 101, pl. xii., fig. 34, September 9. Mission Hill, Upper St. Joseph (Angabunga) River, Hall Sound, Papua.

STENOTROPIS PAPUENSIS Smith, 1896.

1896. *Omphalotropis papuensis* Smith, Journ. Malac., Vol. v., p. 19, pl. ii., fig. 19, June 25. North of Orangerie Bay, Papua (Anthony).

Note: These three species may not be congeneric or even accurately referable to the above genus, but this is the nearest named group available.

Family PUPINELLIDAE.

This family has developed extensively in the Louisiade Group, reaching a very large size. The true *Pupinella* is a Philippine Island form, the name being introduced in a British Museum catalogue, entitled "Nomen. Moll. Brit. Mus." This book has no author's name mentioned, the preface being signed by J. E. Gray, but now the work is assigned to Baird, upon whose authority I know not. It may be recorded that all contemporaneous writers, such as Herrmannsen, H. & A. Adams, Pfeiffer, etc., credit the authorship of *Pupinella* to Gray. None of the many Papuan species agrees with the Philippine type, so that names have to be introduced for the various groups now known. The species vary from comparatively small to very large, i.e., over 30 mm. in height. The adults are pupiform and solid, with a circular mouth, the last whorl large and practically non-umbilicate. The immature, however, is a thin conical helicoid with a very large perspective umbilicus and a rather square mouth. It still is very unlike any Cyclostomatid, Cyclotid or Cyclophorid form of shell with which they are associated by some workers such as Thiele.

Genus SCAEOPUPINA nov.

Type, *Pupina forbesi* Pfeiffer.

Shell large, pupiform, a little excentric, umbilicate, two canals present. The umbilicus varies from open to a chink only. The posterior canal faint and the anterior lateral canal merely notches the columellar margin, varying from a complete notch to a slight indentation, the last whorl strongly pitted.

SCAEOUPUPINA FORBESI Pfeiffer, 1852.

1852. *Pupina forbesi* Pfeiffer, Zeitschr. für Malak., 1851, p. 150, refers to Ic., figs. 19-20, probably not yet published: Syst. Conch. Cab. Band I., Abth. 19, p. 238, pl. 31, figs. 19-20, August, 1852, for *P. grandis* Forbes, "P.Z.S., 1851", nec Gray.
1851. *Pupina grandis* Forbes, Voy. Rattlesnake, Vol. ii., p. 380, pl. 2, figs. 10a-d, "1852" = December, 1851. South East Is., Louisiades. Not *Pupina grandis* Gray, A.M.N.H., Vol. vi., p. 77, September, 1840.

SCAEOUPUPINA ANGASI Brazier, 1875.

1875. *Pupina angasi* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 5, April 27, "New Guinea—Capt. Hovell" = Rossel Is., Louisiades.
1889. *Pupinella louisiadensis* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 204, pl. 13, figs. 3-4, September. Rossel Is.

SCAEOUPUPINA SMITHII Smith, 1891.

1891. *Pupinella smithii* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. vii., p. 136, January. ex Brazier MS. New name for
1875. *Pupinopsis angasi* H. Adams, Proc. Zool. Soc. (Lond.), 1875, p. 389, pl. 45, figs. 2, 2a, October 1. Louisiade Archipelago. Not *P. angasi* Brazier, April 1875, *supra*.
- [1873. *Pupina grandis* var. *minor* Cox, Proc. Zool. Soc. (Lond.), 1873, p. 567, November. Louisiades. Indeterminate.]

SCAEOUPUPINA ROSSELIANA Smith, 1889.

1889. *Pupinella rosseliana* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 205, pl. 13, figs. 5, 6, 6a, September. Rossel Is.

Genus DIDOMASTA nov.

Type, *Pupinella macgregori* Smith.

Very large solid excentric pupiform shells, imperforate in adult, coarsely

pitted, mouth round, anterior canal developed into a curl, aperture opening downwards, posterior canal obsolete.

DIDOMASTA MACGREGORI Smith, 1889.

1889. *Pupinella macgregori* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 205, pl. 13, figs. 1-2, September. Rossel Is.

Genus FANTEMA nov.

Type, *Pupinella minor* Smith.

Small for the huge Pupinellids of the Louisiades, this is more regular, the spire more pointed, pitting absent, longitudinal striation present on last whorl, imperforate, anterior canal horizontal produced into a tube with curl opening upwards, posterior canal narrow vertical.

FANTEMA MINOR Smith, 1889.

1889. *Pupinella minor* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 205, pl. 13, figs. 7-8, September. Rossel Is.

Genus BIAMORA nov.

Type, *Pupina moulinsiana* Fischer & Bernardi.

Similar in size and form to the preceding, but with very pronounced longitudinal plication, umbilical chink present, anterior canal not produced, posterior vertical, and operculum with strongly fringed outer surface.

BIAMORA MOULINSIANA Fischer & Bernardi, 1857.

1857. *Pupina moulinsiana* Fischer & Bernardi, Jour. de Conch., Vol. v., p. 299, pl. 9, figs. 6-7, January. "New Caledonia, error = Woodlark Is.
1857. *Pupina leucostoma* Montrouzier, Essai Fauna Woodlark Is., p. 136 (cites) Ann. Soc. Imp. Agric. Hist. Nat. et Arts., Lyon, 1856. Woodlark Is.
1871. *Pupina intermedia* Brazier, Proc. Zool. Soc. (Lond.), 1871, p. 586, August 16, ex Angas MS. in synonymy.

Genus BRAZIERA Smith, 1887.

1887. *Brazieria* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 424, pl. 15, fig. 15, June 1, in synonymy ex *Brazieria typica* Brazier, Proc. Linn. Soc. N.S.W., Vol. vii., p. 35, 1883, nomen nudum. Haplotype, *Megalomastoma brazierae* Smith.

BRAZIERA BRAZIERAE Smith, 1887.

1887. *Megalomastoma brazierae* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 424, pl. 15, fig. 15, June. Fergusson Is.
1887. *Brazieria typica* id., ib., ex Brazier, as above, nom. nud.

BRAZIERA AIGNANENSIS Hedley, 1891.

(Plate iii., fig. 22.)

1891. *Pupinella brazierae* var. *aignanensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 105, September 9. St. Aignan = Misima, Louisiades.

Genus HELAPOSA nov.

Type, *Pupinella crossei* Brazier.

Shell small, regular, spire acuminate, striate, perforate, umbilical area keeled, mouth circular with lip reflected all round, anterior canal horizontal, posterior obsolete.

HELAPOSA CROSSEI Brazier, 1876.

1876. *Pupinella crossei* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 111, July, Yule Is. Figd. Tapparone-Canefri, loc. cit., p. 267, pl. x., figs. 20-21, 1883.

Genus *ALLISMA* nov.Type, *Pupinella tapparonei* Hedley.

Shell small, regular, spire sharply acuminate, imperforate, finely striate, posterior canal deep, vertical, anterior slit well marked, heavy body glaze, outer lip much expanded, operculum with obsolete fringing externally.

ALLISMA TAPPARONEI Hedley, 1891.

1891. *Pupinella tapparonei* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 106, pl. vii., fig. 36, September 9, ex Brazier MS. Fly River, Papua.

Genus *BELLARDIELLA* Tapparone-Canefri, 1883.

1883. *Bellardiella* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 265 (dated July 14). Haplotype, *B. martensiana* T.-C.

BELLARDIELLA MINOR Hedley, 1891.

1891. *Bellardiella minor* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 102, pl. xii., fig. 35, September 9. Mission Hill, Hall Sound, Papua.

The typical *Bellardiella* is a small Pupinellid with a somewhat acuminate spire, deeply umbilicate, and the circular mouth complete, without any slits, but the anterior slit developed into a tube behind. The type was from Western New Guinea, and the Papuan shell is smaller, imperforate, and in the juvenile stage shows the slit in the lip seen in other groups, but placed lower down, and opening basally, with no signs of posterior canal. The more pointed spire, more swollen body whorl, more circular aperture, and non-umbilicate indicates a subgeneric distinction, which can be named *Litabella* nov.

Family PUPINIDAE.

The small glassy Pupinids seem well distinguished from the larger dull Pupinellids in every feature.

Genus *PUPINA* Vignard, 1829.

1829. *Pupina* Vignard, Ann. Sci. Nat. Paris, Vol. xviii., p. 439, pl. 11c, December. Haplotype, *P. keradrini* (*keraudrenii* correctly on plate), New Guinea.

PUPINA GIBBA Hedley, 1891.

1891. *Pupina gibba* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 107, pl. xii., fig. 38, September 9. Upper St. Joseph River, Hall Sound, Papua.

PUPINA OVALIS Hedley, 1891.

1891. *Pupina ovalis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 106, pl. xii., fig. 37, September 9. Mita, Milne Bay, Papua.

A large series from Round Is., Louisiades, shows a larger shell, measuring 10 x 6.5 mm., less swollen medially, with the anterior aperture less pronounced, which may be called *P. teres* sp. nov.

PUPINA TORTIROSTRIS Sowerby, 1917.

1917. *Pupinella tortirostris* Sowerby, Proc. Mal. Soc. (Lond.), Vol. xii., p. 320, November 10. Sudest Is., Louisiade Archipelago.

Family DIPLOMMATINIDAE.

Only one species has so far been recorded from Papua, but probably many species will later be found as these minutiae need looking for.

Genus *EUADNITA* nov.Type, *Diplommatina symmetrica* Hedley.

This species recalls *Gastroptychia* and *Sinica*, but is separated by its regular form, its somewhat acuminate spire, its bold sculpture and its

dextral aperture with columellar tubercle and duplicate expansion of outer lip.

EUADNITA SYMMETRICA Hedley, 1891.

1891. *Diplommatina symmetrica* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 107, pl. xii., fig. 39, September 9. Basilaki (= Moresby) Is.

Subclass PULMONATA.

The development of large "Zonitids" and the lack of "Helicids" are notable features in contrast to the Australian fauna, and, though there may be many small species yet to be discovered, these differences will not be much altered. Many families will later be utilised for their reception, while very many genera will be needed, the genera in use showing very incongruous associations, obviously of heterogeneous origins.

Order STYLOMMATOPHORA.

Family ELASMATINIDAE.

Genus ELASMIAS Pilsbry, 1910.

1910. *Elasmius* Pilsbry, Nautilus, Vol. xxiii., p. 122, March. Orthotype, *Tornatellina aperta* Pease.

ELASMIAS TERRESTRIS Brazier, 1876.

1876. *Tornatellina terrestris* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 109, July. Yule Is., Papua.

Family GASTROCOPTIDAE.

Genus AUSTRALBINULA Pilsbry, 1916.

1916. *Australbinula* Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. xxiv. (pt. 93), p. 11, December 18. Orthotype, *Gastrocopta rossiteri*.
1917. *Australbinula* Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. xxiv., pt. 94), pp. 155-166, July 18. Orthotype, *G. hedleyi* Pilsbry = *rossiteri* supra.

AUSTRALBINULA MACRODON Pilsbry, 1917.

1917. *Gastrocopta macdonnelli macrodon* Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. xxiv., p. 164, pl. 27, figs. 7, 8, 10, July 18. Mita, Milne Bay, Papua.

Hedley had recorded this as *Pupa pedicula*, but Pilsbry has separated it as above, and the large teeth suggest its subgeneric distinction with the name *Papualbinula*.

Family SUBULINIDAE.

Hedley recorded from Milne Bay, the egregious *Stenogyra subula*, which was regarded as *Opeas gracile* by Pilsbry, but there is now grave doubt of the conclusions there reached. Preston has named specimens from Milne Bay as distinct, and these may be later discussed.

Family SUCCINEIDAE.

Genus PAPUSUCCINEA nov.

Type, *Succinea simplex* Hedley, not Pfeiffer = *strubelli* Strubell.

Hedley described and figured the Papuan "*Succinea*" under the name *S. simplex* Pfeiffer (a New Hebridean species), and later gave figures of the jaw and radula, which separate the species from the Australian and Pacific Island forms.

PAPUSUCCINEA STRUBELLI Strubell, 1895.

1895. *Succinea strubelli* Strubell, Nachr. d. Malak. Gesell., Year 27, p. 152, ex Kobelt MS., September-October, 1895. Cloudy Mts., Papua.
1895. *Succinea papuana* Strubell, id. ib. Lorne Range, north of Orangerie Bay, Papua.

1891. *Succinea simplex* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 100, pl. xii., fig. 32, September 9. (Milne Bay, Papua) id. ib., p. 691, pl. xlii., fig. 34 (jaw), and fig. 37 (radula).

Family PARTULIDAE.

Typical members of this Polynesian family have been found on Woodlark Island and the eastern tip of Papua, and aberrant members further inland.

Genus MELANESICA Pilsbry, 1909.

1909. *Melanesica* Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. xx., p. 166, September 29. Orthotype, *Partula turneri* Pfeffer.

MELANESICA SIMILARIS Hartman, 1886.

1886. *Partula similis* Hartman, Proc. Acad. Nat. Sci. Philad., 1886, p. 30, pl. ii., fig. 1. Woodlark Is.

1886. *Partula woodlarkiana* id. ib., p. 33, pl. ii., fig. 8. Same locality.

Type of *similis* refigured by Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. xx., p. 302, pl. 37, fig. 13, type of *woodlarkiana*, fig. 16, and specimens from Trobriand Is., figs. 14-15. Clench records the species from mainland, East Cape, Papua, while a *Partula* occurs on the Laughlan Group.

MELANESICA OCCIDENTALIS Hedley, 1891.

1891. *Partula occidentalis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 98, pl. xii., fig. 31, September 9. Samarai Is.

Genus SCILISTYLUS nov.

Type, *Placostylus remotus* Hedley.

Although Hedley recorded this as a *Placostylus* it is nothing like the type of that genus, and has most of the characters of the Partulidae, though it is somewhat aberrant. Its large size, sculpture, umbilical chink, thickened lip, also separate it even as Hedley, at the time suggested, the lengthened somewhat regular spire being characteristic.

SCILISTYLUS REMOTUS Hedley, 1898.

1898. *Placostylus remotus* Hedley, Proc. Linn. Soc. N.S.W., vol. xxlii., p. 97, fig. in text, June 23. Mambare Goldfield, Northern-border, Papua.

Genus AMIMOPINA Iredale, 1933.

1933. *Amimopina* Iredale, Rec. Austr. Mus., Vol. xix., p. 42, August 2. Orthotype, *Bulimus beddomei* Brazier.

AMIMOPINA MACLEAYI Brazier, 1876.

1876. *Bulimus macleayi* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 108, July. Yule Is., Papua.

1894. *Partula macleayi* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 387, pl. xxvi., figs. 22-23, December 10. Rigo, Papua (English).

At the latter citation, Hedley figured the jaw and radula (160 x 40.6.1.6.40), and on this data assigned this peculiar form to this location.

Family PARALAOMIDAE.

Genus PAPULAOMA nov.

Type, *Flammulina abdita* Hedley.

This alpine species ascribed to *Flammulina* seems to range better in this family, its minute size, form and sculpture recalling that of members, the protoconch being spirally lirata, separating it from the east Australian true *Paralaoma*.

PAPULAOMA ABDITA Hedley, 1897.

1897. *Flammulina abdita* Hedley, Rec. Austr. Mus., Vol. iii., p. 47, pl. xi., figs. 10-12, August 5. Mount Scratchley, 12,200 ft., Papua.

Family CHAROPIDAE.

Genus MISSIOCLIVUS nov.

Type, *Charopa texta* Hedley.

Not much like typical *Charopa*, and its turbinate form and narrow umbilicus, its finely radiate protoconch, rather coarse sculpture, small mouth, size, combine to distinguish it from any Australian named group.

MISSIOCLIVUS TEXTUS Hedley, 1891.

1891. *Charopa texta* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 79, pl. x., fig. 12, September 9. Mission Hill, Upper St. Joseph River, Hall Sound, Papua.

Family MICROCYSTIDAE.

This family name seems to be in doubt, but Burrington Baker's use of Helicarionidae, with numerous subfamilies, is a worse expedient.

Genus EXPOCYSTIS Iredale, 1937.

1937. *Expocystis* Iredale, Austr. Zool., Vol. ix., p. 4, November 12. Orthotype, *Helix rustica* Pfeiffer.

EXPOCYSTIS SAPHO Brazier, 1876.

1876. *Helix (Thalassia) sapho* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 100, July. Yule Is. Specimens from Malva, Mission Hill, figured by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 77, pl. ix., fig. 7, September 9; and anatomy, id. ib., p. 686, pl. xxxviii., fig. 7, and pl. xxxviii., fig. 4 (radula, 96 x 36.10.1.10.36).

EXPOCYSTIS BRUIJNII Tapparone-Canefri, 1883.

1883. *Nanina bruijnii* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 206, pl. 5, figs. 13, 14, 15. Fly and Katow Rivers, Papua.

EXPOCYSTIS MAILUENSIS Smith, 1896.

1896. *Microcystina sapho* var. *mailuensis* Smith, Journ. Malac., Vol. v., p. 18, June 25. Mailu, north of Orangerie Bay, Papua (Anthony).

EXPOCYSTIS CALCARATA Hedley, 1891.

1891. *Microcystina calcarata* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 76, pl. ix., fig. 8; pl. x., fig. 9, September 9. Mita, Milne Bay, Papua.

Family NITORIDAE.

Genus PRAVONITOR Iredale, 1937.

1937. *Pravonitor* Iredale, Austr. Zool., Vol. ix., p. 3, November 12. Haplo-type, *Nitor krefftii* Cox.

PRAVONITOR ANNULUS Brazier, 1876.

1876. *Helix (Thalassia) annulus* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 100, July. Marrahata (= Mowatta) Katow River, Papua. Type figured, Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 78, pl. x., fig. 10, 1891.

1883. *Nanina orbiculum* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 204, pl. v., figs. 16, 17, 18; pl. 7, fig. 7 (date July 8). Fly and Katow Rivers, Papua.

PRAVONITOR PAPUANUS Smith, 1896.

1896. *Macrochlamys papuana* Smith, Journ. Malac., Vol. v., p. 18, pl. ii., figs. 8-9, June 25. North of Orangerie Bay, Papua (Anthony).

Family HELICARIONIDAE.

The family Helicarionidae is here restricted to the Helicarion-like molluscs, and even so restricted it is almost certainly polyphyletic, and instead of adding unlike groups this family will later be much subdivided. Only two small species have, as yet, been recorded from Papua, but each of these represent a distinct genus.

Genus MISTARION *nov.*

Type, *Helicarion musgravei* Hedley.

Shell small, globose, thin, animal with pointed tail, jaw short and wide, radula of 128 rows with formula 45.18.1.18.45, quite unlike that of the northern Australian *Vercularion*, which has the formula 103.17.1.17.103.

MISTARION MUSGRAVEI Hedley, 1891.

1891. *Helicarion musgravei* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 77, pl. x., fig. 14, September 9. Doura, west of Port Moresby, Papua; id. ib., p. 687, pl. xxxviii., fig. 9 (jaw), and pl. xli., fig. 30 (radula).

Genus ELLARION *nov.*

Type, *Helicarion visi* Hedley.

Shell small, depressed, thin, animal with truncate tail, jaw smooth, radula with formula, 20.12.1.12.20, the great reduction of marginals being quite abnormal.

ELLARION VISI Hedley, 1891.

1891. *Helicarion visi* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 76, pl. x., fig. 13, September 9. Basilaki (= Moresby) Is.

Family DURGELLINIDAE.

Through the confusion brought about by anatomical workers, each amending the other's results, refuge for the small known Papuan shells is taken under the above family name, without prejudice.

Genus DURGELLINA Thiele, 1928.

1928. *Durgellina* Thiele, Zool. Jahrb. Jena. Syst., Vol. 55, p. 135, April 25. Haplotype, *D. vitrina* Thiele (Bismarck Archipelago).

DURGELLINA MAINO Brazier, 1876.

1876. *Helix (Conulus) maino* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 101, July. Yule Is. Type figured, Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 75, pl. ix., fig. 6, September 9.

DURGELLINA ANTHROPOPHAGORUM Hedley, 1894.

1894. *Sitala anthropophagorum* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 385, pls. xxiv., xxv., xxvi., figs. 1, 3, 21, 24, December 10. Purari Valley, Papua.

Genus SEROSTENA *nov.*

Type, *Helix starkei* Brazier.

Shell small, conical, perforate with coarse radial sculpture. Hedley has described an animal, assigned to this species from Milne Bay, which has the tail keeled, ending in a small horn, while the shell was contrasted with that of the Fijian *subrugosa*, now the type of Burrington Baker's *Dasyconus*.

SEROSTENA STARKEI Brazier, 1876.

1876. *Helix (Conulus) starkei* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p.

103, July. Yule Is. Type figured by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 79, pl. ix., fig. 5, September 9, 1891.

Genus *CHRONOCERYX* nov.

Type, *Sitala* ? *sublimis* Hedley.

This minute alpine species is unlike any other Papuan shell, being depressedly turbinate, smooth, with very narrow umbilicus, and may be a relative of *Chronos* Robson (Trans. Zool. Soc. (Lond.), Vol. xx., p. 292, 1910), also from the highlands of New Guinea.

CHRONOCERYX *SUBLIMIS* Hedley, 1897.

1897. *Sitala* ? *sublimis* Hedley, Rec. Austr. Mus., Vol. iv., p. 47, pl. xi., figs. 4, 5, 6, August 5. Mount Scratchley, 12,200 ft., Papua.

Genus *PARATROCHUS* Pilsbry, 1893.

1893. *Paratrochus* Pilsbry, Man. Conch., Tryon, Ser. 2, Vol. viii., p. 295, July 1. Haplotype, *Helix dalbertisi* Brazier.

At the place given, Pilsbry introduced this group as a section of *Endodonta*, referring to a figure in Vol. ix., pl. iii., figs. 20-21, but when that volume was issued, November 16, 1893, the figure, a copy of Hedley's, appeared on pl. vi., figs. 55-56. Möllendorff stated that this group should be referred to *Aulacospira*, while Fulton referred a second species to *Ganesella*, under the subgenus *Coliolus*, a very different looking shell.

PARATROCHUS *DALBERTISI* Brazier, 1876.

1876. *Helix (Ochtheiphila) dalbertisi* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 104, July. Yule Is., Papua. Type figured by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 79, pl. x., fig. 11, September 9, 1891.

PARATROCHUS *WEISKEI* Fulton, 1902.

1902. *Ganesella (Coliolus) weiskei* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 184, March. Kemp Welsh River, Papua (E. Weiske).

Note: Gude (Proc. Mal. Soc. (Lond.), Vol. vi., p. 116, June, 1904), recorded *Ganesella euconus* Möllendorff, from "Dinawa, British Central New Guinea, 3,600 ft.", from a single dead specimen. Möllendorff described *Satsuma euconus* (Proc. Mal. Soc. (Lond.), Vol. i., p. 235, pl. xv., fig. 2, March, 1895), a shell measuring 16.5 mm. by 16 mm., from Astrolabe Bay, in the north of New Guinea.

Family *XESTIDAE*.

The huge aggregation of molluscs known as "Zonitids" must be divided into many groups, and these are here regarded as families. Burrington Baker has published a brilliant and exhaustive account of Zonitid shells from the Pacific Islands (Bernice P. Bishop Museum, Bulletin 158 (1938), 165 (1940) and 166 (1941)), but this has proved of little assistance in connection with the problems presented by the Papuan forms. Based on anatomical work, the Zonitids have been treated in an iconoclastic (his own word) manner, and his results bring back to mind the measured opinion of a master (G. B. Howes, Proc. Malac. Soc. (Lond.), Vol. ii., p. 74, July, 1896), who wrote: "In other words, so-called 'systematics', properly pursued, is but a branch of morphology, and the so-called 'systematist' is a morphologist; and your anatomist, in deriding the species-man, is discounting his own occupation. . . . I am bound to confess that the systematology of the anatomist offends me vastly more than the anatomy of the taxonomist". The only method of reaching stability in connection with these molluscs is

by collaboration between an experienced conchologist such as the "guessing Gude" with an able anatomist such as Baker, the latter attempting to confirm the former's conclusions, and when that proves impossible the former to review his results in the face of the facts provided by the anatomist. By these means an approximation to reality would be practically achieved.

Genus *XESTA* Albers, 1850.

1850. *Xesta* Albers, Die Heliceen, 1st ed., p. 58. Logotype (Martens), Die Heliceen (Albers), 2nd ed., Systematic List, p. xii., 1861), *Helix citrina* L.

Note: The claims of *Naninia* Sowerby, 1839, error for *Nanina* Gray, are not worthy of notice.

XESTA OLDHAMIANA sp. nov.

(Plate iii., fig. 1.)

The many species accumulated under the name *citrina* are usually easily differentiated. Thus a series sent by Mr. R. Oldham from behind Port Moresby are all alike in coloration, size and form, differing from the true *citrina* from the Moluccas. They are uniform lemon with the first two apical whorls red brown, and are smaller and more elevated than *citrina* with the whorls more rounded. The type measures 37 mm. broad by 25 mm. high.

XESTA INTERJECTA sp. nov.

(Plate iii., fig. 2.)

A series from the Fly River and the Purari Valley may be tentatively associated, as they are less elevated than the preceding, and, though the apical whorls are still red-brown, the succeeding ones are pale creamy white with a green band below the suture and a broader green band around the base, sometimes with a purple suprapерipheral line. The juveniles show the same coloration. The type measures 35 mm. by 21 mm. from the Purari Valley.

XESTA DINAWA sp. nov.

(Plate iii., fig. 7.)

Recorded by Gude (Proc. Mal. Soc. (Lond.), Vol. vi., p. 115, June 23, 1904), as *Hemiplecta campylonota*, a Dorey species, though Gude noted differences. The shells themselves are very distinct, the convex spire being peculiar, the base being equally convex, the mouth thus rather small, being about as high as broad, a rounded keel present peripherally, the sculpture above being of very fine radial striae, apical whorls smooth with well marked radial curved ripples sutural, horn colour, with a peripheral darker colour band. Size: 36 mm. broad by 22 mm. high, from Dinawa, Central Papua.

XESTA COMPLICATA sp. nov.

(Plate iii., fig. 9.)

Mr. A. C. English collected a number of shells at Cloudy Bay, Papua, and amongst them are two species belonging to this series. One is a large flattened *Xesta* recalling the true *X. citrina* in shape and appearance, the other more conical related to the preceding species. Shell large, depressedly turinate, spire little elevated, periphery obsoletely keeled, base well rounded, mouth large, outer lip not descending, broader than high, lip thin, umbilicus very narrow, the columellar reflection slight, not obscuring the umbilicus. The sculpture consists of very fine radial striae above, with a very minute transverse striation below. Coloration pale fawn above, almost white below,

a narrow brown band encircling the whorl below the periphery. Breadth, 43 mm.; height, 24 mm.

XESTA CORNECEREA sp. nov.

(Plate iii., fig. 4.)

Shell large, very thin, depressedly conical, spire whorls a little convex, last whorl rounded, not descending, mouth longer than broad, base comparatively less rounded than in preceding, mouth shorter and deeper, umbilicus still narrower and obscured by slight columellar reflection. Sculpture of fine radial striae above and a still finer spiral striation below. Coloration pale horny with an indistinct subperipheral darker band. Breadth, 42 mm.; height, 27 mm. Cloudy Bay, Papua (A. C. English).

With this was another specimen which seems to be a large representative of *X. dinawa*, agreeing in all essential features, but with the upper sculpture more pronounced, the lower surface with minute spirals, coloration paler, measuring 39 mm. broad and 25 mm. high. This may be called *X. dinawa nubilisinus* subsp. nov. (Plate iii., fig. 5), and made the basis of a new subgenus, *Corneoxesta*.

XESTA FRAUDULENTA Smith, 1887.

1887. *Nanina fraudulenta* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 417, June. Foot of Astrolabe Mts., Papua.

This was described as like *hunsteini*, measuring 42 mm. in breadth by 24 mm. high, but without the spiral striae of that species, and has not been seen since.

Genus *AMENIXESTA* nov.

Type, *Nanina hunsteini* Smith.

This *Xesta*-like species has a smaller spire, more globose form than *Xesta*, but is finely sculptured throughout. The anatomy of the snails has been shown to differ, while the radular formula is 160 x 90.20.1.20.90, and that of *citrina* is given as 125.24.1.24.125.

AMENIXESTA HUNSTEINI Smith, 1887.

1887. *Nanina hunsteini* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 416, pl. 15, fig. 6, June. Foot of Astrolabe Mts., and Owen Stanley Range, presented by Brazier (coll. Goldie).

From Fife Bay, south-east coast, specimens are smaller, spire a little more elevated, mouth more globose, as high as long, and sculpture finer, the type measuring 30 x 25 x 21 mm., against *hunsteini*, 40 x 33 x 25 mm. This may be called *A. fifensis* sp. nov. Hedley collected shells at Milne Bay, north-east point, and regarded them as typical, describing their anatomy (Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 685, pl. xxxviii., fig. 1, and pl. xxxix., fig. 11, and pl. xlii., fig. 39, June 10, 1892). These show finer sculpture and are less swollen than typical ones, whorls still very rounded, mouth longer than high, measuring 35 x 29 x 20 mm., and may be called *A. mita* sp. nov. (Plate iii., fig. 10; *fifensis*, Plate iii., fig. 3).

Genus *ZAGMENA* nov.

Type, *Helix inclinata* Pfeiffer.

Shell lentilshaped, whorls flattened, sutures lightly impressed, strongly keeled, basally swollen, aperture not descending, mouth elongate, lip thin, perforate, perforation very small, coloration brown-red, sculpture fine thread-like radials, apex shows strong curved radials sutured.

ZAGMENA INCLINATA Pfeiffer, 1864.

1864. *Helix inclinata* Pfeiffer, Proc. Zool. Soc. (Lond.), 1863, p. 526, April 25, 1864. Louisiade Group = Misima, fide Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 200, pl. 13, fig. 16, September 1889, type figured, 30 x 26½ x 14 mm. Anatomy by Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 686, pl. xl., fig. 20; pl. xxxviii., fig. 3 (radula, 96 x 54.11.1.11.54); and pl. xlii., fig. 38, June 10, 1892.

ZAGMENA DIVISA Forbes, 1851.

1851. *Helix divisa* Forbes, Voy. Rattlesnake, Vol. ii., p. 376, pl. ii., figs. 5a-b., 23 x 20 x 11 mm., "1852" = December, 1851. South East Island, Louisiades.

ZAGMENA ROSSELLIANA Smith, 1889.

1889. *Nanina rosseliana* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 200, pl. 13, fig. 15 (40 x 36 x 21½ mm.), September. Rossel Is.

ZAGMENA WOODLARKENSIS Hedley, 1891.

1891. *Nanina divisa* var. *woodlarkensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 74 (31 x 27 x 17 mm.), September 9. Woodlark Is.

ZAGMENA MINOR Hedley, 1891.

1891. *Nanina divisa* var. *minor* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 74 (22 x 19 x 11 mm.), September 9. Mita, Milne Bay, Papua.

ZAGMENA INFELIX Smith, 1893.

1893. *Nanina infelix* Smith, Conchologist, Vol. ii., p. 109, March 25. Probably British New Guinea. Fig. Smith, Journ. Malac., Vol. v., p. 17, pl. ii., figs. 6-7 (type, 24 x 21 x 12 mm.), June 25, 1896 (from Orangerie Bay).

1895. *Nanina (Hemiplecta) strubelli* Strubell, Nachr. d. Malak. Gesell., 27th Year, p. 151 (September-October) (24 x 21 x 12 mm.), ex Kobelt MS. Cloudy Mts. (= Bay), New Guinea. Figured, Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 828, pl. 224, figs. 9, 10, 1897.

ZAGMENA OUGARRANA Smith, 1905.

1905. *Hemiplecta ougarrana* Smith, Ann. Mag. Nat. Hist., Ser. 7, Vol. xvi., p. 195 (22.5 x 20 x 10.5 mm.), August. Owgarran, An(g)abunga River, Owen Stanley Range, 8,000 ft., Papua.

ZAGMENA PRATTI Gude, 1904.

1904. *Euplecta pratti* Gude, Proc. Mal. Soc. (Lond.), Vol. vi., p. 114, figs. in text (18 x 16 x 8.5 mm.), June 23. Dinawa, 3,600 ft., inland from Hall Sound, Papua (E. A. Pratt).

ZAGMENA CAIRNI Smith, 1887.

1887. *Nanina cairni* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 417, pl. 15, fig. 5 (36 x 31 x 20 mm.), June. Foot of Astrolabe Mts., Papua.

ZAGMENA EGBERTAE Martens, 1883.

1883. *Nanina egyptae* Martens, Jahrb. d. Malak. Gesell., Vol. x., p. 81 (32 x 27½ x 18 mm.), January = February. Taburi (Astrolabe Mts.), South East New Guinea (O. Finsch).

ZAGMENA JANSONI Smith, 1905.

(Plate iii., fig. 6.)

1905. *Hemiplecta jansonii* Smith, Ann. Mag. Nat. Hist., Ser. 7, Vol. xvi., p.

195 (35 x 28 x ?), August. Owgarra, An(g)abunga River, Owen Stanley Range, 8,000 ft., Papua.

ZAGMENA LISSORHAPHE Smith, 1895.

1895. *Nanina lissorhapse* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 230 (25½ x 22 x 13 mm.), March; figured, id. ib., Vol. xvi., p. 363, pl. 20, figs. 1-2, November. Mt. Maneao, North Coast, Papua.

ZAGMENA AMBLYTROPIS Smith, 1895.

1895. *Nanina amblytropis* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 230 (23 x 20 x 13 mm.), March; figd. id. ib., Vol. xvi., p. 363, pl. 20, figs. 5-6, November. Mt. Maneao, North Coast, Papua.

Family ARIOPHANTIDAE.

The very large Papuan land shells have been referred to *Oxytes*, *Rhysota*, *Hemiplecta*, by different workers, so that it becomes necessary to provide a new genus for their reception.

Genus HUNSTEINIA nov.

Type, *Oxytes hercules* Hedley.

Shell very large, solid, orbicular, whorls a little convex, malleated above, smooth below, spire little elevated, apical whorls ribbed malleate, conical, whorls sharply keeled peripherally, base somewhat swollen, very narrowly perforate, mouth elongate, lips little thickened. The radular formula of 120 x 90.20.1.20.90 does not agree with that recorded by Semper for typical Rhysotids from the Philippines. Named in memory of Carl Hunstein, a young collector of Papuan land molluscs, who was later killed by a tidal wave in New Britain while engaged in collecting (fide Sharpe, Hist. Coll. Nat. Hist. Brit. Mus., Vol. ii., p. 394, 1906).

HUNSTEINIA HERCULES Hedley, 1891.

1891. *Oxytes hercules* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 70, pl. ix., figs. 1-2 (66 x 55 x 30 mm.), September 9. Fly River, Papua.

HUNSTEINIA FLYENSIS Hedley, 1891.

1891. *Oxytes flyensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 71, pl. ix., figs. 3-4 (60 x 49 x 34 mm.), September 9. Fly River, Papua.

Smith suggested the lumping of Hedley's two species through examination of specimens from unknown localities, with some from north of Orangerie Bay, which almost certainly represent a distinct form from either of the Fly River species. Gude also recorded *Rhysota hercules* var. *flyensis* from Dinawa, which again may prove distinct.

HUNSTEINIA ARMITI Smith, 1895.

1895. *Rhysota armiti* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 231 (45 x 39 x 22 mm.), March; figd. id. ib., Vol. xvi., p. 363, pl. 20, figs. 3-4, November, 1895. Mt. Maneao, North Coast, Papua.

This northern representative is easily differentiated by the peculiar inflation of the base.

HUNSTEINIA BISCUPTILIS Smith, 1905.

1905. *Rhysota biscuptylis* Smith, Ann. Mag. Nat. Hist., Ser. 7, Vol. xvi., p. 194 (35 x 29 x ?), August. Owgarra, An(g)abunga River, 8,000 ft., Owen Stanley Range, Papua.

Family CALYCIDAE.

Genus CALYCIA H. Adams.

1865. *Calycia* H. Adams, Proc. Zool. Soc. (Lond.), 1865, p. 412. August 26.

Orthotype, *Bulimus crystallinus* Reeve.

CALYCIA ISSELLIANA Tapparone-Canefri, 1883.

1883. *Calycia isseliana* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 101, fig. in text (dated June 25). Katow River, Papua.

Family TROCHOMORPHIDAE.

Once again a Polynesian family just reaches the eastern outskirts of Papua, while the corresponding Moluccan family, Geotrochidae, penetrates into the western portion of Papua. None of the Trochomorphoid generic names used by Burrington Baker are available, so that new names become necessary.

Genus ROSSELIDENA *sp. nov.*

Type, *Trochomorpha nigrans* Smith.

Shell very depressed, Trochomorphoid, spire flatly conical, base flattened, whorls very lightly convex, periphery acutely keeled, base rounded, widely umbilicate, umbilicus about one-third the breadth of the shell, mouth elongate, lip thin, sculpture of obscure growth lines only, apical whorls smoothish, base similarly striate, keel puckered. Radular formula, 118 x 26.23.1.23.26, agreeing exactly with that of *Peleliua*, of the Caroline Group, another case of convergence only.

ROSSELIDENA NIGRANS Smith, 1889.

1889. *Trochomorpha nigrans* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 200, pl. 13, figs. 9-11, September. Rossel Is.

ROSSELIDENA CORNEA Hedley, 1891.

(Plate iii., fig. 12.)

1891. *Trochomorpha nigrans* var. *cornea* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 79, September 9. Sudest Is., Louisiades.

Family GEOTROCHIDAE.

Although agreeing closely conchologically with the Trochomorphids, the Molluscan Geotrochids have been shown to be of different origin. These are represented in the western portion of Papua, but here again new generic names are needed.

Genus GEODISCUS *nov.*

Type, *Helix lomonti* Brazier.

Shell very flattened, thin, spire little elevated, whorls flattened, base little rounded, umbilicus deep, perspective, less than a third the width of base, peripheral keel very acute, slightly puckered above and below, sculpture of very fine radial striation with lower sutural puckering, apical whorls smooth. Anatomical details given by Tapparone-Canefri.

GEODISCUS LOMONTI Brazier, 1876.

1876. *Helix (Discus) lomonti* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 101, July 1. Yule Is. Figured, Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 91, pl. ii., figs. 5-7 (shell), pl. vi., fig. 2 (genital system), pl. viii., fig. 3 (jaw), and pl. ix., fig. 4 (radula).

Genus NECVIDENA *nov.*

Type, *Necvidena froggatti* *nov.*

Shell small, depressedly conical, strongly keeled peripherally, thin, spire elevated, whorls a little rounded, base rounded, deeply umbilicate, umbilicus narrow, mouth subquadrate, outer lip thin, columella thin, vertical, not reflected.

NECVIDENA FROGGATTI *nov. sp.*

(Plate iii., fig. 8.)

This species, collected by W. W. Froggatt at the Fly River, was recorded by Hedley as *Trochomorpha planorbis* Lesson, but Lesson described his species as *Helix (Carocolla) planorbis* (Voy. Coquille., Zool., Vol. ii., p. 312, pl. 13, fig. 4, 1831), from Dorey, Western New Guinea. It is immaterial to discuss the identity, as Lesson's name is invalid, being preoccupied by Linné.

The Papuan shell measures 13 mm. in breadth by 7 mm. in height, and in addition to the very fine growth radials a fine spiral lining is present, the apical whorls being smooth.

Superfamily HELICOIDEA.

This superfamily is represented in Papua by a strong development of Papuinid and Chloritid forms and very little of the Helicid series, at present only two or three being referred to the lastnamed, and their family name is even doubtful.

Family HADRIDAE.

This family name is used with reservation, as no Australian member of the family is very like the Papuan shells here placed.

Genus MECYNTERA *nov.*

Type, *Thersites septentrionalis* Hedley.

Shell very tall elevated "Helicoid" with lustrous surface, apical whorls smooth, not differentiated, succeeding whorls somewhat flattened, sutures little impressed, sculpture radial growth lines only, outer lip descending a little, thickened and reflected all round, mouth a little oblique, higher than broad, columella vertical, much reflected obscuring narrow umbilicus, strong glaze connecting lips across body whorl.

This is a beautiful development if related to the Australian group, and is quite unlike any north Australian genus such as *Gnarosphia*, *Hadra*, etc.

MECYNTERA SEPTENTRIONALIS Hedley, 1897.

1897. *Thersites septentrionalis* Hedley, Rec. Austr. Mus., Vol. iii., p. 11, fig. in text, January 7. Musa River, N.E. Coast, Brit. New Guinea.

Genus KENDALLENA *nov.*

Type, *Helix broadbenti* Brazier.

Shell turbinate, spire elevated, whorls rounded, narrowly umbilicate. This bulky shell recalls the Chloritid *Sulcobasis*, and is very dissimilar to the preceding in almost every particular, the sutures more impressed, the whorls rounded, the sculpture stronger, almost ridges, mouth rounded, broader than high, lip strongly reflected all round, columella short, broadly reflected over the narrow open umbilicus. When Hedley gave anatomical details he made no comment save that the jaw with eleven ribs differed from that of the Queensland *Sphaerospira*, which had only 6-8 ribs, and gave the radular formula as 160 x 57.12.1.12.57.

KENDALLENA BROADBENTI Brazier, 1877.

1877. *Helix (Hydra) broadbenti* Brazier, Proc. Linn. Soc. N.S.W., Vol. ii., p. 25, July. Port Moresby, New Guinea = Laloki River. Figd. Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 188, pl. v., fig. 21, 1883.

The type measured 43 mm. broad and 31 mm. high, and Gude reported that the Dinawa shells were more depressed, but gave measurements as 46

mm. broad by 35 mm. high. Mr. Oldham sent some from somewhere near Port Moresby, and while some agree very closely with the typical shell one beautiful specimen is very elevated, and while it is 48 mm. broad it is no less than 50 mm. in height. It is so very distinct that a new name must be introduced as *Kendallena qualis* sp. nov. (Plate iii., fig. 18).

Note: Smith (Proc. Mal. Soc. (Lond.), Vol. ii., p. 288, November, 1897) recorded *Thersites (Hadra) forsteriana* Pfeiffer, from Fergusson Island, an obvious error, which he justified with the very naive comment: "Mr. Sowerby, from whom it was obtained for the Museum, has no reason to doubt the correctness of the habitat, since he received the shell with others from a collector who has been travelling in New Guinea and the adjacent islands".

Family PAPUINIDAE.

It may be recalled that only fifty years ago every "Helicoid" snail was classed under the "genus" *Helix*, and Pilsbry (Man. Conch. (Tryon), Ser. 2, Vol. vii., 1891) "defined" the subgenus *Papuina* thus: "No exact diagnosis can be framed for a group in which such diverse forms occur as in *Papuina*. It is still, however, an easy matter to recognize a species as belonging here; for with all its variety, the group is a very natural one". Then to assist in the recognition Pilsbry was compelled to distinguish fourteen groups. A couple of years later Pilsbry allowed *Papuina* generic rank, added another division, and separated one group as a subgenus, the latter being almost immediately shown by Hedley to be referable to another family. I separated the Australian groups, and now having studied the New Guinea and island forms have to distinguish many more.

Genus CANEFRIULA nov.

Type, *Helix tomasinelliana* Tapparone-Canefri.

Shell heliciform, solid, whorls well rounded, periphery rounded, mouth open, broader than high, lip reflected, columella broadly reflected, almost concealing the narrow umbilicus, sculpture of radial growth lines sometimes strongly pronounced as in the type. Conchologically the shell is very like that of *Papuina* = *Insularia* = *Eugenia* preocc., but the anatomy has been shown to differ. There may be three or more groups here confused as *taumantias* has flattened base, a more oval lengthened aperture, lip broadly reflected towards a beak-like ending. This may stand as the type of a new subgenus, *Paulodorra*, while *sicula* is somewhat similar in shape but very much smaller, the last whorl sub-keeled and the base more rounded, the aperture less beaked and may be subgenerically named *Medistoma* nov.

CANEFRIULA TOMASINELLIANA Tapparone-Canefri, 1883.

1883. *Helix tomasinelliana* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 148, pl. 4, fig. 1, pl. 5, fig. 1, pl. 7, fig. 3, pl. 8, figs. 6 and 12 (dated July 4). Fly River, Papua.

CANEFRIULA AZONATA Hedley, 1891.

1891. *Geotrochus tomasinellianus* var. *azonatus* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 93, September 9. Douglas River, Papua (Bevan).
1892. *Helix (Papuina) agnocheilus* Smith, Proc. Zool. Soc. (Lond.), 1891, p. 488, pl. xl., fig. 5, April 1. Douglas River, Papua.

CANEFRIULA RIDIBUNDA Tapparone-Canefri, 1883.

1883. *Helix ridibunda* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix.,

p. 142, pl. 3, figs. 10-11, pl. 6, fig. 5, pl. 8, fig. 17 (dated June 26). Fly River, Papua.

CANEFRIULA SICULA Brazier, 1876.

(Plate iii., fig. 16.)

1876. *Helix (Geotrochus) siculus* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 106, July. Katow River, Papua.

1883. *Helix meditata* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 144, pl. 3, fig. 15, pl. 6, fig. 6 (dated June 26). Katow River, Papua.

CANEFRIULA GESTROI Tapparone-Canefri, 1883.

1883. *Helix gestroi* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 150, pl. 4, fig. 3, pl. 5, fig. 3, pl. 7, fig. 2, pl. 8, figs. 5 & 14 (dated July 4). Fly River, Papua.

CANEFRIULA BRAZIERAE Brazier, 1876.

1876. *Helix (Geotrochus) brazierae* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 107, July. Yule Is., Papua. Figured, Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 152, pl. 4, fig. 2, pl. 5, fig. 2, pl. 7, fig. 1, pl. 8, figs. 7-13, 1883.

CANEFRIULA CYNTHIA Fulton, 1902.

(Plate iii., fig. 11.)

1902. *Papuina cynthia* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 183, March. British New Guinea (ex C. E. Beddome as *brazierae*).

CANEFRIULA HIXSONI Brazier, 1877.

1877. *Helix hixsoni* Brazier, Proc. Linn. Soc. N.S.W., Vol. ii., p. 120, July. Hall Sound, Papua. Figured, Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 187, pl. v., fig. 22, 1883; Tryon, Man. Conch., Ser. 2, Vol. vi., p. 177, pl. 25, fig. 91, 1890.

CANEFRIULA LACTEOLOTA Smith, 1887.

1887. *Helix (Geotrochus) lacteolota* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 420, pl. 15, fig. 9, June. Foot of Owen Stanley Mountains, Papua.

Specimens received from London labelled "*lacteolota* British New Guinea" vary from tall very narrow specimens to tall comparatively broad shells, but these cannot be named without definite locality, which should have been available in the first instance.

CANEFRIULA TAUMANTIAS Tapparone-Canefri, 1883.

1883. *Helix taumantias* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 141, pl. 3, fig. 13, 14, pl. 6, fig. 4, pl. 9, figs. 16 and 18 (dated June 26). Fly and Katow Rivers, Papua.

CANEFRIULA CINGULATA Hedley, 1891.

(Plate iii., fig. 15.)

1891. *Geotrochus taumantias* var. *cingulatus* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 93, September 9. Aiplana, St. Joseph River, Hall Sound, Papua.

CANEFRIULA ROLANDI *sp. nov.*

(Plate iii., fig. 13.)

A nice series sent by Mr. R. Oldham from behind Port Moresby represents a species not previously seen from that locality, being a flattened

relation of *tomasinelliana*, being of the same peculiar style of coloration, but with the columella greatly expanded and bearing in front a strong dentiform bulge. The type measures 44 mm. broad by 29 mm. high. The strong sculpture of *tomasinelliana* is present in a modified state, and the present species has the very rounded whorls and coloration of the series, *brazierae*, *hixsoni*, *cynthia* and *lacteolata*, which may constitute a natural subgenus.

Genus *CLAUDETTEA* *nov.*

Type, *Helix bevani* Hedley.

This very beautiful shell cannot be confounded with any other in this fauna, and its exact relationship is not very clear. Shell large, flattened, strongly keeled, mouth open, broad, lip reflected, perforate. Spire short and conical, sculpture of fine radial striae.

CLAUDETTEA BEVANI Hedley, 1891.

(Plate iii., fig. 17.)

1891. *Helix bevani* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 85, pl. xi., figs. 22-23, September 9, ex Brazier MS. Douglas River, British New Guinea.

The original specimen, now in the Australian Museum, is a large dead shell which has been broken and repaired, but it was of such striking appearance that it demanded description. A very beautiful younger specimen was collected by Donald Mackay from the Upper Purari River, and it is pale brown with the lips of the mouth dull red and is here figured.

CLAUDETTEA ELISA Hedley, 1891.

1891. *Geotrochus elisa* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 86, pl. xi., figs. 24-25, September 9. British New Guinea (Goldie).

This differs from the preceding in its more open umbilicus, its smaller mouth, size, and different colour scheme, and until more is known about it it may be allotted to a new subgenus, *Claudena*.

Genus *RHYNCHOTROCHUS* Möllendorff, 1895.

1895. *Rhynchotrochus* Möllendorff, Proc. Mal. Soc. (Lond.), Vol. i., p. 237, March. Orthotype, *Papua tayloriana* Adams & Reeve.

This group has given more trouble than all the other Papuan shells, as the similarity of the species is confusing, although series from any given locality appear uniform. The length of the beak and coloration of the lips are also misleading, and have led to extreme views. Thus, while Hedley was inclined to lump everything into one species, Möllendorff recorded two species and a variety from one locality. After examination of specimens from some twenty localities, a conservative view is attempted with provision for ample revision.

RHYNCHOTROCHUS TAYLORIANUS Adams & Reeve, 1850.

(Plate iv., fig. 1.)

1850. *Helix tayloriana* Adams & Reeve, Zool. Voy. Samarang, Vol. ii., p. 59, pl. xv., figs. 2a-b, August. No locality = Port Moresby here selected from comparison of shells.

After long and careful consideration, Hedley's suggestion that the shell was collected by John Macgillivray is accepted. Specimens collected by Mr. R. Oldham, behind Port Moresby, agree very closely with the figure, and therefore Port Moresby is here fixed as the type locality. Using this species as a basis, the other Papuan species can be described and determined.

The type is a low conical shell with the mouth attenuated into a long beak, the upper lip bending sinuously down and then up again to form the beak, dark brown red, the shell being pale pink in the earlier whorls changing into lemon on the last, and measuring 32 mm. in breadth, and 18.5 mm. in height.

RHYNCHOTROCHUS YULENSIS Brazier, 1876.

1876. *Helix (Gestrochus) yulensis* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 105, July. Yule Is. Figured, Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 123, pl. iii., fig. 2, pl. vi., fig. 1, pl. viii., fig. 11 (dated June 25), 1883, and Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vii., p. 59, pl. 2, figs. 29-31, 1891.

This species is unlike the preceding in the shorter beak of the more open mouth recalling that of *Henga*, and it may be that it is a relative of that genus rather than congeneric with *Rhynchotrochus*. This appears to be confirmed by the presence in the same locality of a long-beaked species.

RHYNCHOTROCHUS STRABO Brazier, 1876.

1876. *Helix (Gestrochus) strabo* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 106, July. Katow River, Papua.
1883. *Helix katauensis* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 126, pl. iii., figs. 1-3, pl. vi., fig. 3 (dated June 25). Katau, Papua.

RHYNCHOTROCHUS ROSEOLABIATUS Smith, 1887.

1887. *Helix (Papua) roseolabiata* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 421, June. Fergusson Is.

A long-beaked form with pale lips, measuring 30½ mm. broad by 19 mm. high, and with the mouth contracted medially. The coloration probably attracted Smith, as it is a deep cream with a crimson peripheral band.

RHYNCHOTROCHUS MONTICOLA *sp. nov.*

(Plate iv., fig. 2.)

Shell small, imperforate, broadly conical, spire with whorls flattened but a little convex, periphery sharply angulate, base evenly rounded, mouth comparatively small, beak short, upper lip slightly sinuate, lower rounded, columella thin, appressed, lips thin, brown-red. Shell coloration, apical whorl blackish, succeeding whorls pinkish, densely mottled with dull purplish, the dark colouring following the wavy sculpture, cream peripheral band present, base with a couple of dark spiral bands. Breadth, 27 mm.; height, 19 mm.

Mount Astrolabe, Papua.

RHYNCHOTROCHUS PRAEFECTUS *sp. nov.*

(Plate iv., fig. 3.)

Shell larger, imperforate, broadly conical, with whorls little rounded, sutures deeper, periphery angulate, base rounded, swollen towards aperture, mouth large, open, upper lip sinuate, beak short, lower lip convex, columella thickened, appressed, pink glaze connecting with outer lip, lip brown-red. Shell coloration, apical whorl bluish, later whorls creamy with freckling as in preceding species, also subperipheral whitish band, base with several brownish-red bands. Breadth, 33 mm.; height, 22.5 mm.

Collingwood Bay, North-east Papua.

RHYNCHOTROCHUS SINUCOLA *sp. nov.*

(Plate iv., fig. 4.)

Shell medium, imperforate, broadly conical with whorls rather flattened,

sutures lightly impressed, periphery sharply angulate, base rounded, not swollen, mouth small, open, beak short, upper lip wavy, lower lip squarish basally, columella rather flexuous, thin, appressed. Dead shell, but showing coloration to be similar to that of the preceding, with lips probably pale. Breadth, 29 mm.; height, 18 mm.

Cloudy Bay, south coast of Papua.

RHYNCHOTROCHUS VALLICOLA sp. nov.

(Plate iv., fig. 5.)

Shell medium, broadly conical, imperforate, spire shortly conical, whorls little convex, periphery acutely angulate, base rounded, a little swollen towards the aperture, mouth long and narrow, upper lip sinuate and bent forward, cramping the opening and attenuated into a shallow spout, the lower lip flattened, the columella curved, not much thickened, and appressed. Coloration similar to that of the preceding, but much darker in every item, except the lips, which are pale rosy. Breadth, 30 mm.; height, 17 mm.

Purari River, Papua.

RHYNCHOTROCHUS EXTRANEUS sp. nov.

(Plate iv., fig. 6.)

Shell large, broadly conical, imperforate, spire shortly conical, whorls somewhat convex, sutures well marked, periphery sharply angulate, base very rounded, swollen towards the aperture, mouth broad and long, very open, upper lip with a strong sinuation ending in a short beak, lower lip rounded, columella very thin, appressed. Coloration uniform pale pinkish white, lips pale rose. Breadth, 30 mm.; height, 18 mm.

Kerema, Gulf of Papua.

RHYNCHOTROCHUS MYSTICUS sp. nov.

(Plate iv., fig. 7.)

A shell was figured by Smith (Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 421, pl. xv., fig. 1a, June, 1887) as from South Cape, ex Brazier. Specimens from the same lot are before me, and it recalls *Henga trobriandensis*, but has the outer lip sinuate. Shell small, conical, whorls rather convex, periphery scarcely angulate, base very rounded, mouth very open, upper lip sinuate, beak short, under lip rounded, columella thin, appressed. Coloration as in *monticola*, lips red-brown. Breadth, 26 mm.; height, 20 mm.

Genus *LETITIA* nov.

Type, *Helix brumeriensis* Forbes.

Shell heliciform, spire short, whorls round, faintly subkeeled, mouth open large, as broad as high, lip reflected all round, upper lip scarcely sinuate, columella broad, flattened, eliminating umbilicus, hence shell imperforate, sculpture of fine grains arranged spirally. Radular formula, 110 x 40.7.1.7.40.

LETITIA BRUMERIENSIS Forbes, 1851.

1851. *Helix brumeriensis* Forbes, Voy. Rattlesnake, Vol. ii., p. 375, pl. 2, figs. 1a-b, "1852" = December, 1851. Brumer Is., Papua.

In the typical species the callus joining the outer and inner lip across the body whorl is black. A similar shell from the mainland at Port Glasgow, and recorded by Smith from Millport Harbour, many years ago, is larger and more conical, measuring 38 mm. broad by 33 mm. high, while the type measured 28 mm. broad by 24 mm. high. This may be named *Letitia adjuncta* sp. nov. (Plate iv., fig. 8). Hedley recorded specimens from Milne

Bay, Papua, and these are broadly conical shells, in which the blackish-red outer lip is separated from the similarly coloured columella by a thin white glaze on the body whorl. This may be named *L. interrupta* sp. nov., the type measuring 37 mm. in breadth by 29 mm. in height. (Plate iv., fig. 9.) A series collected on Moturina, one of the Calvados Chain, Louisiades, by the Rev. H. K. Bartlett, consists of smaller shells, more depressed and with a thickened blackened outer lip and columella, boldly interrupted by white on the body whorl, and may be called *L. moturina* sp. nov., the type measuring 31 mm. breadth by 22 mm. high. (Plate iv., fig. 10.)

LETITIA ALBOLABRIS Hedley, 1891.

(Plate iv., fig. 11.)

1891. *Geotrochus brumeriensis* var. *albolabris* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 89, September 9. Mita, Milne Bay, Papua.

This, introduced as a white-lipped variation only, proves to be a well-marked species with several relations. The type is smaller than the Milne Bay "*brumeriensis*" = *interrupta*, but comparatively narrower, with the lip entirely white and a thickened callus connecting the outer and inner lip; it measures 34 mm. in breadth by 29 mm. in height.

A large number of specimens, presented by the Rev. H. K. Bartlett from Panapompom, in the Deboyne Group, agrees in general coloration, but the shells are smaller, less conical, measuring 30 mm. in breadth by 21 mm. in height. This may be called *L. maria* sp. nov. (Plate iv., fig. 12.)

From Tube Tube, Engineer Group, another series is composed of small, thin, heavily freckled specimens, measuring 26 mm. in breadth by 20 mm. in height; these have the ground colour chalky white with pale green zig-zag rows and blotches, and the immature phases of the preceding species show the same coloration, but the adult is usually, in the other species, more or less uniform white. This species may be named *L. degener* sp. nov. (Plate iv., fig. 13.)

Probably other island species will later be named as a large series from Panneati, close to Panapompom, also collected by the Rev. H. K. Bartlett, agrees with *maria*, but a lot from Kevalalwa, an island off the East Cape, collected by the Rev. H. T. Williams, shows variation.

SACCOLETITIA subgen. nov.

The larger size, different coloration, and especially the distinct radular formula of 153 x 42.10.1.10.42, make it necessary to distinguish the following species (*zeno*) with a new subgeneric name *Saccoletitia*.

LETITIA ZENO Brazier, 1876.

1876. *Helix (Geotrochus) zeno* Brazier, Proc. Linn. Soc. N.S.W., Vol. i., p. 107, July. Hall Sound, Brit. New Guinea. Fig. Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 88, pl. xi., fig. 27, 1891, and by Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vii., p. 53, pl. i., figs. 2-4, 1891.

1893. *Helix zeno* Smith, Conchologist, Vol. ii., p. 108, March 25. Error only.

LETITIA LATIAXIS Smith, 1883.

1883. *Helix (Geotrochus) latiaxis* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xi., p. 191, March. "D'Entrecasteaux Is." Error = Foot of Mt. Astrolabe, fide Brazier. Figd. Smith, id., Vol. xix., p. 420, pl. 15, fig. 7, June, 1887.

LETITIA SUBGLOBOSA Fulton, 1902.

(Plate iii., fig. 14.)

1902. *Papuina zeno* var. *subglobosa* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 184, March. Port Moresby, Papua (Emil Weiske).

Genus *CAROLETTIA* nov.Type, *Helix diomedes* Brazier.

Recalling *Pompalabia* from above, but has the open mouth and sculpture of *Letitia*, and the strong peripheral keeling is a distinctive feature. Shell conical, depressed, solid, strongly keeled, mouth open, lip reflected, expanded basally, columella broad, appressed, closing the umbilicus, lips joined, sculpture smoothish, growth lines crossing spiral rows of minute grains.

CAROLETTIA DIOMEDES Brazier, 1877.

1877. *Helix diomedes* Brazier, Proc. Linn. Soc. N.S.W., Vol. ii., p. 121, July. "Brumer Is. Error = Coutance Is., fide Brazier himself. Figd. Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 122, pl. iii., fig. 12, 1883, and Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vii., p. 54, pl. i., figs. 9-10, 1891.

CAROLETTIA VILIA sp. nov.

(Plate iv., fig. 14.)

Mr. Melbourne Ward collected a shell at Vilirupu, south coast of Papua, which is taller and narrower, with the last whorl steeply descending and almost forming a continuous mouth. The type measures 30 mm. in breadth by 25 mm. in height.

CAROLETTIA SECANS Hedley, 1894.

1894. *Papuina secans* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 389, pl. xxv., figs. 8-9, December 10. Mt. Maneao, north coast, Papua. [Cf. 1897. *Helix (Papuina) linterae* Möllendorff, Nachr. d. mal. Gesell, 29th Year, p. 30, March-April No. New Guinea. See Ancey, Journ. de Conch., Vol. lii., p. 311, December 25, 1904.]

Genus *POMPALABIA* nov.Type, *Helix naso* Martens.

Large flattened conical Papuinid, strongly keeled, mouth with the upper lip bidentate and descending, cramping the entrance, followed behind by a depression and strong crest, imperforate, sculpture of wavy wrinkling.

POMPALABIA NASO Martens, 1883.

1883. *Helix naso* Martens, Jahrb. d. Malak. Gesell, Vol. x., p. 82, January-Febr. Taburi, Astrolabe Bay (error for Mts.), South East New Guinea. Figd. Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vii., p. 56, pl. 2, figs. 32-35, 1891.
1883. *Helix (Geotrochus) tapparonei* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xi., p. 190, March. "D'Entrecasteaux Is." Error = Foot of Mt. Astrolabe.
1884. *Helix hunsteini* Brazier, Proc. Linn. Soc. N.S.W., Vol. ix., p. 805, November 29, as synonym of *H. tapparonei* Smith, ex *Helix hundsteini* (sic) Brazier, Proc. Linn. Soc. N.S.W., Vol. v., p. 637, May 20, 1881, *nomen nudum*.

POMPALABIA GEMINA Fulton, 1902.

1902. *Papuina gemina* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 183, March. River Arva (= Aroa), 5,000 ft., Papua (Emil Weiske).

POMPALABIA MEEKIANA Smith, 1905.

1905. *Papuina meekiana* Smith, Ann. Mag. Nat. Hist., Ser. 7, Vol. xvi., p. 193, fig. in text, August. Owgarrá, An(g)abunga River, Owen Stanley Range, 8,000 ft., Papua.

Genus HENGA *nov.*Type, *Geotrochus trobriandensis*, Hedley.

Shell subconical, thin, subkeeled, imperforate, mouth open, upper lip contracted, sinuate, mouth about as broad as high, columella thin, appressed, sculpture of wavy wrinklings above, sometimes fine spirals below. Radular formula, 154 x 55.8.1.8.55.

HENGA TROBRIANDENSIS Hedley, 1891.

1891. *Geotrochus trobriandensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 92, pl. xi., fig. 28, September 9. Trobriand Is.

This may be

1887. *Helix (Papuina) albocarinata* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 422, pl. 15, fig. 12, June. "South Cape" error.

HENGA WILLIAMSII Clench & Archer, 1936.

1936. *Papuina williamsii* Clench & Archer, Nautilus, Vol. 49, p. 88, pl. 5, fig. 4, January. Omara Kana, Central Kiriwina, Trobriand Is.

1936. *Papuina williamsii atalanta* Clench, Nautilus, Vol. 50, p. 53, October. Same locality.

The exact status of these forms is in doubt.

HENGA DELICIOSA *sp. nov.*

(Plate iv., fig. 15.)

A beautiful little species was brought in by the Rev. H. K. Bartlett from the Laughlan Islands, more depressed, much smaller, thinner, whorls rounded, last whorl peripherally keeled, base rounded, mouth oval, open, lip little thickened, pink, columella thin, coloration, pellucid with opaque cream zigzag markings, the type measuring 18 mm. broad and 11 mm. in height.

Genus VIOLENGA *nov.*Type, *Helix rollisiana* Smith.

Shell depressed, heliciform, solid, imperforate, periphery rounded, mouth open, lengthened, broader than high, upper lip a little sinuate extending into a short open beak, columella thin, appressed, sculpture of wavy wrinklings, coloration peculiar of violet mottling. Radular formula, 154 x 45.10.1.10.45; *louisiadensis*, 142 x 45.9.1.9.45; and *woodlarkiana*, 130 x 42.9.1.9.42.

VIOLENGA ROLLSIANA Smith, 1887.

1887. *Helix (Papuina) rollisiana* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 423, pl. 15, fig. 3, June. "South Cape" error = Seymour Bay, Fergusson Is.

1941. *Papuina bartletti* Cotton, South Austr. Nat., Vol. 21, p. 5, figs. in text, May 31. Salamo, Fergusson Is.

VIOLENGA MISIMA *nom. nov.*

(Plate iv., fig. 16.)

1889. *Helix (Geotrochus) thomsoni* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 202, pl. 13, figs. 12-13, September. St. Aignan = Misima, Louisiade Group. Not *Helix thomsoni* Pfeiffer, Mal. Blatt., 1871, p. 120.

VIOLENGA MILLICENTAE Cox, 1871.

1871. *Helix millicentae* Cox, Proc. Zool. Soc. (Lond.), 1871, p. 323, pl. xxxiv., figs. 2-2a, August 16. Louisiade Is.

VIOLENGA LOUISIADENSIS Forbes, 1851.

1851. *Helix louisiadensis* Forbes, Voy. Rattlesnake, Vol. ii., p. 376, pl. i., fig. 8a, "1852" = December, 1851. South East Is., Louisiades.

VIOLENGA WOODLARKIANA Souverbie & Montrouzier, 1863.

1863. *Helix woodlarkiana* Souverbie & Montrouzier, Journ. de Conch., Vol. xi., p. 76, January 1; p. 172, pl. 5, fig. 2, April 1. Woodlark Is.

Note: *Helix comriei* Angas (Proc. Zool. Soc. (Lond.), 1876, p. 489, pl. xlvi., figs. 4-5), from Huon Gulf, North Coast, seems to belong to this series.

Genus KATHADENA nov.

Type, *Helix gurgustii* Cox.

Looks like an elevated relative of *Violenga* with similar sculpture, but strongly keeled periphery; the mouth similar, a little narrower and sub-attenuated to a spout recalling *tayloriana*, upper lip sinuate expanded all round, the lower expanded, merging into small straight columella. Anatomy distinct and radular formula, 145 x 47.10.1.10.47.

KATHADENA GURGUSTII COX, 1879.

1879. *Helix (Geotrochus) gurgustii* Cox, Proc. Linn. Soc. N.S.W., Vol. iv., p. 114, pl. 16, fig. 1, June 16. Rossel Is. Figured, id. ib., Ser. 2, Vol. ii., p. 1,062, pl. 21, figs. 3-4, 1888.

Genus ZENOLINA nov.

Type, *Helix chapmani* Cox.

Shell conical, tall, thin, imperforate, subkeeled, mouth open, higher than broad, lip a little expanded, columella broad flattened, sculpture of wavy wrinkling. The very open mouth is characteristic, otherwise this species might be regarded as an elevated relation of the *Violenga* series. Radular formula, 138 x 32.6.1.6.32, is also peculiar.

ZENOLINA CHAPMANI COX, 1879.

1879. *Helix (Geotrochus) chapmani* Cox, Proc. Linn. Soc. N.S.W., Vol. iv., p. 115, pl. 16, fig. 2, June 16. Rossel Is. Refigured, id. ib., Ser. 2, Vol. ii., p. 1,063, pl. 21, figs. 10-11, 1888.
1887. *Helix (Acavus) coraliolabris* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 419, pl. xv., fig. 4, June. Russell = Rossel Is.

ZENOLINA CHILOCHROA Costa, 1899.

1899. *Papuina chilochoa* Costa, Proc. Mal. Soc. (Lond.), Vol. lii., p. 306, fig. in text, October. British New Guinea.

Genus LULLICOLA nov.

Type, *H. boyerii* Fischer & Bernardi.

Resembling the preceding but with lip thinner and less reflected and coloured, suggesting that it is an elevated development from the *Henga* series. A curious convergence is seen in the radular formula which is 104 x 33.6.1.6.33.

LULLICOLA BOYERII Fischer & Bernardi, 1857.

1857. *Helix boyerii* Fischer & Bernardi, Journ. de Conch., Vol. v., p. 297, pl. 9, figs. 8-9, January. "Admiralty Is." error = Woodlark Is.

Genus TEPOMUSA nov.

Type, *Helix canovarii* Tapparone-Canefri.

Shell tall, conical, spire elevated, whorls flattened, sutures lightly im-

pressed, peripheral keel strong, base flattened, little rounded, lip scarcely descending, mouth rather squarish, lips scarcely reflected, columella reflected concealing umbilical chink; this is the same in the juvenile.

TEPOMUSA CANOVARII Tapparone-Canefri, 1883.

1883. *Helix canovarii* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 131, pl. iii., fig. 6 (dated June 26). Fly River, Papua.

A series of specimens from the Purari Valley from juvenile to adult differs in the more convex whorls, the more obtuse apex, the more open mouth, the outer lip not descending, while the coloration is pale brown with the lips white. This may be called *Tepomusa confirma* sp. nov., the type measuring 23 mm. in breadth and 25 mm. in height. (Plate iv., fig. 17.).

Genus *NEGOTOBBA* nov.

Type, *Helix goldiei* Brazier.

Shell large, solid, lentiliform, periphery acutely angulate, spire whorls flattened, sutures little impressed, last whorl descending a little, mouth small, oval, beaked, upper lip wavy, thickened and slightly expanded, underlip broadly reflected, columella also very broad almost hiding narrow deep open umbilicus, a thin callus connecting with outer lip, sculpture of irregular wavy ripple marks, apex smooth, coloration of purple and green blotches and scrolls, quite characteristic. The general appearance is of the North Australian *Meliobba* which is imperforate, has the lips more expanded and a little less beaked mouth and paler colour scheme.

NEGOTOBBA GOLDIEI Brazier, 1884.

1884. *Helix (Obba) goldiei* Brazier, Proc. Linn. Soc. N.S.W., Vol. ix., p. 804, November 29 (ex *Helix goldei* Brazier, Abst. Linn. Soc. N.S.W., of December 29, 1880, issued January 27, 1881, *nomen nudum*; and Proc. Linn. Soc. N.S.W., Vol. v., p. 637, May 20, 1881, *nomen nudum*), new name for
1883. *Helix (Obba) oxystoma* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xi., p. 191, March. D'Entrecasteaux Is., error = foot of Astrolabe Range, Papua, fide Brazier. Not *Helix oxystoma* Thomas, Jahrb. Ver. Nat. Nassau, Vol. ii., p. 136, 1845. Fig. Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vi., p. 217, pl. 58, figs. 37-38, May 1, 1891, and Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 86, pl. x., fig. 20, pl. xi., fig. 21, September 9, 1891.

Through breakage the shells are commonly distorted, some specimens very flattened and others with the spire elevated, being met with in the same locality. The species has been recorded by Gude (Proc. Mal. Soc. (Lond.), Vol. vii., p. 114, June 29, 1906), from Dinawa, collected by E. A. Pratt, and specimens from Cloudy Bay, collected by A. C. English, are before me, but through the abovementioned variation, at present, these appear inseparable.

A very similar species has been named *Helix (Papuina) lintschuana* by Kobelt (Syst. Conch. Cab., Bd. I, Abth. xii., p. 701, pl. 200, figs. 5-6 (dated 26/8/'94), 1897?), from Djamna Is., Humboldt Strait, North Coast of New Guinea.

Note: Pilsbry (Man. Conch. (Tryon), Ser. 2, Vol. ix., p. 139, 1894) has recorded—"The great variation observed in the genitalia and teeth of the species examined, shows that here lies a wide field for future cultivation. These features are no doubt characteristic of minor groups in the genus, and their investigation will lead to valuable results in the classification

of the group, and secondarily may be of use in the study of its geographical distribution and migrations".

No one in the half century that has nearly passed has taken up this challenge.

Although Pilsbry separated some fifteen groups in his genus *Papuina* half a century ago, little has been done to rectify the anomalies since, so that an attempt is here made by indicating some of more notable groups as genera, a complete revision being impossible at the present time.

SOLMOPINA gen. nov. Type, *Helix boivini* Petit. Solomon Group.

Shell broadly conical, spire tall, whorls rounded, imperforate, columella reflected, mouth open, outer lip rounded thin, not reflected, no wrinkly sculpture, shell banded.

SOLMOPESTA gen. nov. Type, *Helix meta* Pfeiffer. Solomon Group.

Similar to preceding, taller, narrower, whorls flattened, very narrowly perforate, columella straight, strongly reflected, concealing umbilicus, outer lip not reflected, thin, no wrinkly sculpture.

SOLMOGADA gen. nov. Type, *Helix flexilabris* Pfeiffer. Solomon Group.

Similar to *Solmopina*, whorls rounded, imperforate, mouth open, lip broadly expanded, sculpture wrinkly.

SOLMODORA gen. nov. Type, *Helix mendoza* Brazier. Solomon Group.

Similar, whorls rounded, but periphery strongly keeled, hence, though mouth open, it is somewhat triangular in form. Radular formula (*futa-korensis*), 100 x 110.1.110, Clapp.

PINNADENA gen. nov. Type, *Helix lombei* Pfeiffer. Solomon Group.

Shell more flattened, the last whorl subkeeled, sculpture not wrinkling, mouth oval, upper lip thin, scarcely expanded, columella broadly reflected, subdenticulate.

MOLMEROPE gen. nov. Type, *Helix pileus* Müller. Moluccas.

Shell tall, narrowly conical, striate, whorls rounded, base a little flattened, minute perforation, mouth open, lip thin, little reflected, columella much reflected, concealing umbilicus.

HOMBRONULA gen. nov. Type, *Helix horderi* Sowerby. New Guinea.

Shell tall, whorls rounded, periphery well rounded as is base, mouth broad, very open, lip reflected all round, columella reflected almost closing umbilicus; projecting tooth at base of columella.

CARMEROPE gen. nov. Type, *Helix pileolus* Ferussac. Moluccas.

Shell tall, conical, whorls flattened, strongly keeled, base flattened, perforate, mouth open, oblong, lip strongly reflected all round, bluntly recurved beak, columella smooth.

ZETEMINA gen. nov. Type, *Helix hedleyi* Smith. New Guinea.

Larger, similar in form, but lip thin, little thickened and lengthened into a beak, columella bearing a notable denticle.

SMEATONIA gen. nov. Type, *Helix eddystonensis* Reeve. Solomon Group.

Shell flattened, conical, perforate, mouth very open, lip widely reflected, lower lip broad, and columella much expanded, concealing umbilicus, sculpture wrinkly.

EMIRALENA gen. nov. Type, *Helix moseleyi* Smith. Admiralty Is.

Shell flattened, large nuclear smooth whorls, few adult whorls rounded, imperforate, mouth open, lip reflected all round, wrinkly sculpture, columella little reflected.

LISPRELIA gen. nov. Type, *Helix novaegeorgiensis* Cox. Solomon Group.

Shell superficially resembling the preceding, but apical whorl larger, columella subdentate, similarity apparently due to convergence only, imperforate, sculpture of corrugations.

SOLMOTELLA gen. nov. Type, *Helix fringilla* Pfeiffer. Solomon Group.

Shell solid, depressedly globose, imperforate, mouth constricted, oblique, lip reflected, columella subdentate, surface not wrinkly.

MUNICEPS gen. nov. Type, *Helix redempta* Cox. Solomon Group.

Shell solid, spire convex, imperforate, mouth rhomboid, columella dentate, outer lip thin, lower lip convex.

Family CHLORITIDAE.

Many years ago Pilsbry attempted to link a heterogeneous assemblage together by means of the supposed sculpture of the apical whorls—"a quincuncially granulated apex" as the true generic criterion,—a very futile expedient. The original "*Chloritis*" was a flattened shell of very rounded whorls, a concave spire, narrow deep umbilicus, mouth crescentic, higher than broad, lip a little expanded, shell with a pilose periostracum, somewhat deciduous and missing in the adult. The suggestion that a granulose apex was paramount allowed the addition of many unlike shells until the mass become a discordant congregation. Now Clapp has provided a sensation by separating very similar shells by means of anatomical examination.

A critical examination of extralimital species became necessary as the Papuan *dinodeomorpha* was the one segregated by Clapp from the conchologically very similar *eustoma*, the type of *Eustomopsis*.

Genus DISTEUSTOMA nov.

Type, *Helix dinodeomorpha* Tapparone-Canefri.

Shell subglobose, spire flattened, even a little elevated, sometimes depressed, umbilicus deep but very narrow, almost occluded by the reflexed columella, otherwise shell characters as in *Eustomopsis*, but animal characters very different, according to Clapp (Bull. Mus. Comp. Zool., Harvard, Vol. lxx., p. 381, November, 1923).

DISTEUSTOMA DINODEOMORPHA Tapparone-Canefri, 1883.

1883. *Helix dinodeomorpha* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 168, pl. 4, figs. 4, 7, pl. 7, fig. 5, pl. 9, figs. 2, 15 (dated July 5). Fly River, Papua.

DISTEUSTOMA NEMA sp. nov.

(Plate iv., fig. 18.)

A beautiful shell from the Purari Valley, determined by Hedley as *dinodeomorpha*, has the whorls more tightly coiled, the mouth much larger and not descending as much, the umbilicus wider, and the hairs longer and not so closely spaced. This measures 29 mm. in breadth and 18 mm. in height.

DISTEUSTOMA LEEI COX, 1873.

1873. *Helix leei* Cox, Proc. Zool. Soc. (Lond.), 1873, p. 565, pl. 48, figs. 5-5a, November. Louisiade Is. = Misima (Smith). Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 687, pl. xxxix., figs. 13, 15, pl. 40, fig. 23 (Anat.). Radula formula, 167 x 40.17.1.17.40. June 10, 1892.

DISTEUSTOMA WOODLARKENSIS Hedley, 1891.

1891. *Chloritis leei* var. *woodlarkensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 83, September 9. Woodlark Is.

1897. *Chloritis fuscopurpurea* Smith, Proc. Mal. Soc. (Lond.), Vol. ii., p. 289, pl. xvii., figs. 12-14, November. Woodlark Is.

DISTEUSTOMA SUDESTENSIS Hedley, 1891.

1891. *Chloritis leei* var. *sudestensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 83, September 9. Sudest Is., Louisiades.

DISTEUSTOMA PAPUENSIS Hedley, 1891.

1891. *Chloritis leei* var. *papuensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 83, September 9. Mita, Milne Bay, Papua.

1936. *Chloritis delphax* Clench, Nautilus, Vol. 50, p. 53, October. Huhuna, 20 miles west of East Cape, Papua. Not *Helix* (*Chloritis*) *delphax* Nachr. d. malak. Gesell., Vol. xxiii., p. 214, 1891, ex Dohrn MS, Astrolabe Bay, North Coast, New Guinea. Figured by Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 648, pl. 186, figs. 5-7, 1897.

DISTEUSTOMA EPHAMILLA Smith, 1895.

1895. *Helix* (*Chloritis*) *ephamilla* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 232, March 1. Brit. New Guinea (northern islands?). Fig., Smith, ib., Vol. xvi., p. 363, pl. 20, fig. 10, November, 1895. Figd. Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 823, pl. 223, figs. 7-8, 1897. Fergusson Is.

DISTEUSTOMA NEPHELE Strubell, 1895.

1895. *Helix* (*Chloritis*) *nephele* Strubell, Nachr. d. malak. Gesell., 27th Year, p. 151, September-October. Cloudy Mts., British New Guinea, 2,500 ft. Figd. Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 822, pl. 223, figs. 5-6, 1897.

GENUS TRADEUSTOMA nov.

Type, *Helix subcorpulentus* Smith.

Shell large, depressed, globose, spire flattened, little elevated, last whorl very large, mouth very large, subcircular, lips joined by a callus, columella expanded, umbilicus narrow deep, umbilical area subkeeled, apical whorls pustulate, early whorls apparently showing distant hair scars, last whorl hairless, sculptured with radial growth lines.

TRADEUSTOMA SUBCORPULENTA Smith, 1891.

1889. *Helix* (*Chloritis*) *subcorpulentus* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. iv., p. 201, pl. 13, fig. 14, September 1. Rossel Is.

GENUS ALEATELIX nov.

Type, *Helix stirophora* Smith.

Shell medium, stout, depressedly turbinata, spire whorls convexly elevated, whorls flattened, periphery subkeeled, base rounded, mouth large, broader than high, lip not descending, outer lip thinnish reflected a little, columella curved broadly reflected over the open umbilicus. Apical whorls almost smooth, sculpture of adult whorls radial growth lines only. Conchologically quite unlike a Chloritid.

ALEATELIX STIROPHORA Smith, 1895.

1895. *Helix* (*Hadra*) *stirophora* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 231, March. Cloudy Bay, South Coast, Papua. Figd. id. ib., Vol. xvi., p. 363, pl. 20, fig. 9, November, 1895. Anat., Moss & Webb, Journ. Malac., Vol. v., p. 33, pl. iii., figs. 1-7, September 30, 1896 (where from study of anatomy conclude the species is Chloritid).

ALEATELIX COLLINGWOODENSIS Preston, 1902.

1902. *Chloritis* (*Sulcobasis*) *stirophora* var. *collingwoodensis* Preston, Proc.

Mal. Soc. (Lond.), Vol. v., p. 17, fig. 5 in text, April 23. Collingwood Bay, British New Guinea.

Genus *GEMITELIX* nov.

Type, *Helix perambigua* Smith.

Shell more conical, even more "Helicoid" than preceding, whorls more rounded, sutures deep, outer lip a little reflected, columella expanded, surface smooth.

GEMITELIX PERAMBIGUA Smith, 1895.

1895. *Helix (Chloritis) perambigua* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 233, March. "Northern Papua". Figured, Smith, id. ib., Vol. xvi., p. 363, p. 20, fig. 11, November, 1895.

Genus *SULCOBASIS* Tapparone-Canefri, 1883.

1883. *Sulcobasis* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 161 (dated July 5). Orthotype, *Helix sulcosa* Pfeiffer.

SULCOBASIS BEATRICIS Tapparone-Canefri, 1883.

1883. *Helix beatricis* Tapparone-Canefri, Ann. Mus. Civ., Genova, Vol. xix., p. 163, pl. 4, fig. 14, pl. 8, fig. 16 (dated July 5). Fly River, Papua.

Genus *GOLDIELIX* nov.

Type, *Helix rehsei* Martens.

The shell more globose than that of the preceding, the apical whorls large, the lips of the mouth greatly expanded, the mouth itself being nearly circular, umbilicus moderate to small. Sculpture of early whorls punctate as if bases of hairs, last whorl apparently hairless, not sulcate. Radula formula, 224 x 46.20.1.20.46.

GOLDIELIX REHSEI Martens, 1883.

1883. *Helix rehsei* Martens, Jahrb. d. malak. Gesell., Vol. x., p. 83, January. Taburi, Astrolabe Range, Papua. Figd., Syst. Conch. Cab., Bd. I., Abth. xii. (*gerrardi*), p. 643, pl. 185, figs. 1-2, 1897 (cf. p. 680, index to plates).

1883. *Helix (Sphaerospira) gerrardi* Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xi., p. 192, March. "D'Entrecasteaux Is." error = inland from Port Moresby, fide Brazier, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. ix., p. 804, 1884. Figd. Smith, Ann. Mag. Nat. Hist., Ser. 5, Vol. xix., p. 418, pl. 15, fig. 14, September, 1889.

GOLDIELIX NEPTIS sp. nov.

(Plate iii., fig. 21.)

Shell subglobose, spire little elevated, rather widely openly umbilicated, mouth rather small, subcircular, coloration of shell pale red, covered by a thin brown periostracum, lips white, umbilicus bordered by a semi-keel; the shell measuring 47 mm. in breadth by 35 mm. in height, from Cloudy Bay. This is apparently not *Helix obtecta* Reinhardt, Sitz. Ges. Nat. Fr., Berlin, No. 4, figs. 58-59, 1886, from South Cape, but that name is invalidated by *Helix obtecta* Lowe, Tr. Camb. Phil. Soc., Vol. iv., p. 47, 1831, and Anton in Rossmassler, 1839 (Sherborn).

GOLDIELIX MERACA sp. nov.

(Plate iii., fig. 20.)

Specimens from Fergusson Island have the narrow umbilicus almost concealed as in *mita*, but the spire is flatter, the shell is smaller, less globose, mouth much smaller, lip less expanded and coloured bluish, the

shell being bright red brown, and measuring 48 mm. in breadth, and 34 mm. in height.

These were apparently described as *Helix (Sphaerospira) anceps* Strubell, Nachr. d. malak. Gesell., 27th Year, p. 150, September-October, 1895, figured by Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 821, pl. 223, figs. 1-2, 1897, but the name is unavailable through the prior usage by Gould, Proc. Bost. Soc. Nat. Hist., Vol. i., p. 139, 1843.

GOLDIELIX MINNIGERODEI Strubell, 1895.

1895. *Helix (Sphaerospira) minnigerodei* Strubell, Nachr. d. malak. Gesell., 27th Year, p. 150, September-October, 1895. Normanby Is. Figd. Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 822, pl. 223, figs. 3-4, 1897 (dated 25/8/95, not issued until 1897).

GOLDIELIX FRAUDULENTA Gude, 1906.

1906. *Chloritis fraudulentata* Gude, Proc. Mal. Soc. (Lond.), Vol. vii., p. 107, pl. xiii., fig. 4, June 29. Dinawa, 3,600 ft., inland from Hall Sound, Papua (E. A. Pratt).

GOLDIELIX MITA *sp. nov.*

(Plate iii., fig. 19.)

Hedley recorded *gerrardi* from Mita, Milne Bay, but later regarded them as *obtecta*. Shell large, spire a little elevated, lips very broadly reflected, completely concealing the narrow umbilicus. The type measures 51 mm. in breadth and 43 mm. in height.

GOLDIELIX PRESTONI Gude, 1902.

1902. *Chloritis (Sulcobasis) prestoni* Gude, Journ. Malac., Vol. ix., p. 59, fig. 4 in text, June 30. Collingwood Bay, Papua.

GOLDIELIX MAJOR Smith, 1905.

1905. *Chloritis (Sulcobasis) globosa* var. *major* Smith, Ann. Mag. Nat. Hist., Ser. 7, Vol. xvi., p. 194, August. Owgarra, An(g)abunga River, Owen Stanley Range, 8,000 ft., Papua.

Specimens so named from Preston seem to belong to *Aleatelix* ante, so there is some confusion here.

GOLDIELIX GLOBOSA Preston, 1902.

1902. *Chloritis (Sulcobasis) globosa* Preston, Proc. Mal. Soc. (Lond.), Vol. v., p. 17, fig. 4, in text, April 23. Northern coast of Papua.

Genus DORCASIDEA *nov.*

Type, *Helix subplicifera* Smith.

Apparently a hairless species recalling *argillacea*, a Chloritoid form, but sculptured with radial lines, although preserving a punctate apex. Shell small, rather helicoid, spire a little elevated, umbilicus narrow, mouth open, lip a little expanded, columella reflected.

DORCASIDEA SUBPLICIFERA Smith, 1895.

1895. *Helix (Dorcasia) subplicifera* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 232, March. Northern coast of Papua. Figd. Smith, ib., Vol. xvi., p. 363, pl. 20, fig. 12, November, 1895.

Genus NANNOCHLORITIS Iredale, 1938.

1938. *Nannochloritis* Iredale, Austr. Zool., Vol. ix., p. 94, November 30. Orthotype, *Chloritis layardi* Gude.

NANNOCHLORITIS CHLORITOIDES Pilsbry, 1891.

1891. *Helix chloritoides* Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vi., p.

267, pl. 58, figs. 34-36 (shell, 12 x 10 x 6½ mm.), May 1. New Guinea (Denton) = Port Moresby.

The radular formula of this species is given as 127 x 24.11.1.11.24.

Note: While examining the Chloritids so-called to determine the relationships of the Papuan groups, a number of large shells was found to be included, mostly very unlike the true *Chloritis*.

In order to ensure more accuracy in comparison some of these are here named generically. When anatomical research, to the standard of Burrington Baker's work on the Pacific Zonitids, is undertaken probably every species will become at least a subgenus.

Genus QUIROSENA nov. Type, *Helix bougainvillei* Pfeiffer (Proc. Zool. Soc. (Lond.), 1860, p. 133, Moll., pl. 150, fig. 7, April. Solomon Group). This is a large solid flattened helicoid, imperforate shell, with a malleated upper surface, mouth open, subcircular, lips reflected.

Genus SHEBA nov. Type, *Helix hombroni* Pfeiffer (Proc. Zool. Soc. (Lond.), 1856, p. 382. Solomon Group). A strongly setose shell with a short very conical spire, last whorl strongly swollen, mouth crescentic, oblique, narrow, umbilicus small, concealed by columellar expansion, outer lip slightly reflected, roughly parallel to curve of body whorl, apex smooth. Said to have radular (50.1.50) and jaw features of *Eustomopsis*, with the genital organs resembling those of *Austrochloritis*, whose shells are very unlike the shell of the present genus.

Genus OPTERIGONE nov. Type, *Helix majuscula* Pfeiffer (Proc. Zool. Soc. (Lond.), 1856, p. 381. New Hanover). This shell is large, subdiscoidal, many-whorled, spire plane, lower surface sloping to a small deep perspective umbilicus, small oblique mouth, lip little expanded, columella vertical.

Genus TIMASENUS nov. Type, *T. penhilus* nom. nov. for *Helix rubra* Albers (Malak. Blatt., 1857, p. 93, pl. 2, fig. 13; Aru Is. ? = Mysol, fide Boettger, Proc. Mal. Soc. (Lond.), Vol. xi., p. 181, et seq., pls. iv. and v., September, 1914; not *Helix rubra* Nardo, 1847 (Sherborn). A large solid Helicoid with rounded whorls, smooth apex, narrow umbilicus, large oblique oval mouth "with a pearly luster inside", lip little expanded.

Family PLANISPIRIDAE.

The molluscs included in this family seem to merge with some of the small shells referred to the preceding family, so that reconsideration seems indicated. The radular features of the true *Planispira* are unlike those of the true *Chloritis*, while the general aspect of the former is also somewhat characteristic.

Genus CRISTIGIBBA Tapparone-Canefri, 1883.

1883. *Cristigibba* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 161 (dated July 5). Orthotype, *Helix tortilabia* Lesson.

CRISTIGIBBA MUSGRAVEI Smith, 1895.

1895. *Helix* (*Cristigibba*) *musgravei* Smith, Ann. Mag. Nat. Hist., Ser. 6, Vol. xv., p. 233, March. Back of Cloudy Bay, southern Papua. Figd. id. ib., Vol. xvi., p. 363, pl. 20, figs. 13-15, November, 1895, and Kobelt, Syst. Conch. Cab., Bd. I., Abth. xii., p. 829, pl. 224, figs. 13-14 (dated April 26), 1897.

CRISTIGIBBA FULGIDA sp. nov.

(Plate iv., fig. 19.)

A shell from Dinawa, inland from Hall Sound, recalls *musgravei*, but is much larger, spire a little more elevated, glossy, cream colour, with a thick red-brown antepieripheral band, mouth a little larger, pink lips, umbilicus

narrower and crest more pronounced. The type measures 22.5 mm. in breadth by 11 mm. in height.

Genus *SPATIOLABIA* nov.

Type, *Cristigibba macgregori* Hedley.

Tapparone-Canefri introduced *Cristigibba* for species of *Planispira* with a produced gibbous crest behind the aperture; in addition the spire was depressed, not elevated, the mouth small and subcircular instead of elongately broad, while the columella was plain and not basally toothed as in *Planispira*. Hedley placed all the Papuan species under *Cristigibba* as there was nothing like true *Planispira* in Papua. But most of the Papuan forms are as unlike *Cristigibba*, as they have the crest reduced or obsolete, while the mouth has enlarged and developed a broadly expanded outer lip, and the name *Spatiolabia* is introduced for these, *macgregori* being selected as type. Radular formula, 110 x 26.20.1.20.26.

SPATIOLABIA MACGREGORI Hedley, 1891.

1891. *Cristigibba macgregori* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 82, pl. x., figs. 17-19, September 9. Aipiana, St. Joseph River, Papua.

SPATIOLABIA DEANIANA Ford, 1890.

1890. *Helix (Planispira) deaniana* Ford, Proc. Acad. Nat. Sci. Philad., 1890, p. 188, July 29. New Guinea (Denton) = Port Moresby district. Figd. (type), Pilsbry, Man. Conch. (Tryon), Ser. 2, Vol. vi., p. 292, pl. 63, figs. 56-58, May 1, 1891.

SPATIOLABIA MACKAYI sp. nov.

(Plate iv., fig. 20.)

S. macgregori is represented in the Purari Valley by a species with a narrower umbilicus, the flaring lips even more developed, especially towards the spire, while towards the base a pronounced angular crest appears behind the aperture. The type measures 30 mm. in breadth and 15 mm. in height.

SPATIOLABIA RHODOMPHALA Tapparone-Canefri, 1883.

1883. *Helix rhodomphala* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 176, pl. 4, figs. 12-13 (dated 5/6 July). Fly River, Papua.

SPATIOLABIA DOMINULA Tapparone-Canefri, 1883.

1883. *Helix dominula* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 178, pl. 4, figs. 8-11, pl. 7, fig. 4, pl. 9, figs. 5, 14 (dated July 5/6). Fly and Katow Rivers, Papua.

These two species appear to be represented in the Purari Valley and Douglas River by others differing slightly as follows.

SPATIOLABIA DULCIOR sp. nov.

(Plate iv., fig. 21.)

This species recalls *rhodomphala* but has a wider umbilicus, the mouth is less oblique and the crest weaker, smaller in size but with the same coloration, the lip pale pinkish rose, the colour bands dark red-brown. The type measures 17 mm. in breadth and 8 mm. in height, from the Purari Valley.

SPATIOLABIA PERMIXTA sp. nov.

(Plate iv., fig. 22.)

Differing from *dominula* in the flatter spire, colour bands, wider umbilicus, and also from *macgregori* in the same features, while it is larger than the preceding *dulcior*, and has the flaring lip of *macgregori*. The type

measures 23 mm. in breadth, and 10.5 mm. in height, from the Douglas River, collected by T. Bevan.

Genus *SETOGIBBA* nov.

Type, *Helix plagiocheila* Tapparone-Canefri.

This genus is a relation of *Cristigibba*, which has developed a pilose periostracum. The shell is small, spire planate, apex concave, umbilicus narrow open, mouth oblique, subcircular, outer lip reflected all round and succeeded by a weak gibbous crest, the base of the last whorl towards the aperture also swollen.

SETOGIBBA PLAGIOCHEILA Tapparone-Canefri, 1883.

1883. *Helix plagiocheila* Tapparone-Canefri, Ann. Mus. Civ. Genova, Vol. xix., p. 174, pl. 5, figs. 4-7, pl. 7, fig. 6 (dated July 5). Fly and Katow Rivers, Papua.

SETOGIBBA ENIGMA sp. nov.

From the Purari Valley comes a similar shell with the mouth more contracted, the lip reflection less pronounced, the basal swelling obsolete, the umbilicus much wider, the shell measuring 15 mm. in breadth and 7 mm. in height. It is even possible that this species is not congeneric, and as the mouth is somewhat sinuate basally, a new subgeneric name is proposed, *Qualigibba*, for it alone.

Note: While investigating this group, the hair producing faculty and gibbous crest behind the aperture appear in both "*Planispira*" and "*Chloritis*", so that in collections some superficial "*Planispira*" are called "*Chloritis*", and vice versa, and the phenomena invite study. On the other hand, the species of "*Planispira*" called *scheepmakeri* Pfeiffer, has developed a very strong peripheral keel, the upper surface convex, the base concavely flattened, with the mouth attenuated to a beak, recalling that of *Rhynchotrochus*, the edge of the lip expanded, and the columella scarcely reflected. This deserves a generic name *Phrenegibba* nov. On the opposite end of the chain appears *loxotropis* Pfeiffer, which is even more curious as it is lustreless, being rather strongly striate, and the spire not plane, but elevated, sometimes conical, a peripheral keel present, the mouth elongate, the lips little reflected but with a gibbous crest behind, while the narrow umbilicus is half choked by the columella. For this quaint development the new generic name *Minacispira* is introduced.

Before leaving this group it may be pointed out that once a Papuan species was referred to *corniculum* Hombron & Jacquinot. The reference is to the Voy. Pôle Sud. Atlas, pl. v., figs. 10-13, which appeared as far as is known in 1853. But in the New Zealand List there is a *corniculum* Reeve, 1852, the type of the genus *Mocella*. Reference to Reeve found that he had described the Neozelanic *corniculum* (Conch. Icon., Vol. vii., sp. 826, pl. 133, dated October, 1851, in error = October, 1852, referring to Pfeiffer's name "*eta*" in the Proc. Zool. Soc. Lond., 1851, where it does not occur), but that previously he had introduced the New Guinea "*Planispira*" as *Helix corniculum* Pfeiffer, without locality (pl. 92, sp. 502, dated April, 1852). Therefore the New Guinea shell must be known as "*Planispira*" *corniculum* Reeve, 1852, while the New Zealand shell must be re-named as *Mocella* *COGITATA* nov.

Genus *MAGITRACHIA* nov.

Type, *Planispira blackiana* Preston.

Recalling *Torresitrachia* in general appearance, but the mouth is seen to be more circular, whorls less rounded, subangulate above, with the

umbilicus more cavernous, the sides steeper, sutures deeply impressed, sculpture of fine radials developing into distant radials, almost ridged towards the aperture. The protoconch is minutely pustulose, whereas *Torresitrachia* has the protoconch smooth but with obscure radials suturad.

MAGITRACHIA BLACKIANA Preston, 1905.

1905. *Planispira (Trachiopsis) blackiana* Preston, Proc. Mal. Soc. (Lond.), Vol. vi., p. 207, fig. in text, March 17. Port Moresby district, British New Guinea (Black).

[Family HELICOSTYLIDAE.

Through Hedley describing a shell ascribed to this group some place has to be given it, but as it has not been recovered since there seems doubt as to the correctness of the locality.

"COCHLOSTYLA PAPUENSIS Hedley, 1891."

1891. *Cochlostyla papuensis* Hedley, Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 96, pl. xii., fig. 30, September 9. British New Guinea (Goldie).

As Andrew Goldie was also a storekeeper, it is possible that this is an extralimital shell, as no locality is exactly given, and no member of the family normally inhabits New Guinea.]

Superfamily PARYPHANTOIDEA.

The reference by Hedley, Smith, Fulton & Möllendorff of shells to the genera *Rhytida* and *Paryphanta* suggests they may belong to this superfamily, but even this is doubtful.

Genus GALLODEMA nov.

Type, *Rhytida globosa* Hedley.

Obviously this Alpine mollusc has nothing to do with the Neozelanic *Rhytida*, the depressed globose form, coloration, sculpture, narrow umbilicus, and pitted apical whorls dissectioning it rather widely, and it is only left in this location through the selection of the generic name, and it may be an aberrant Zonitid.

GALLODEMA GLOBOSA Hedley, 1890.

1890. *Rhytida globosa* Hedley, Ann. Rep. New Guinea, 1888-89, p. 65; Nature, December, 1890, p. 115; Proc. Linn. Soc. N.S.W., Ser. 2, Vol. vi., p. 80, pl. x., figs. 15-16., September, 1891. Mt. Victoria, Owen Stanley Range, Papua, 13,000 ft.

GALLODEMA TROBRIANDENSIS Smith, 1897.

1897. *Rhytida trobriandensis* Smith, Proc. Mal. Soc. (Lond.), Vol. ii., p. 287, pl. xvii., figs. 1-3, November. Trobriand Is.

GALLODEMA PAPUENSIS Preston, 1902.

1902. *Macrochlamys papuensis* Preston, Proc. Mal. Soc. (Lond.), Vol. v., p. 17, fig. 1 in text, April 23. Northern Coast of British New Guinea.

Genus ILLONESTA nov.

Type, *Paryphanta louisadarum* Möllendorff.

Whatever the location of this shell may be, it cannot remain in *Paryphanta*, based on the large New Zealand shell, with which this appears to have nothing in common. *P. busbyi* measures 60-70 mm. in breadth, while the present species reaches 10 mm., and an entirely different form, a large oblique mouth and imperforate thin shell contrasting with the comparatively small mouth and wide umbilicus. Really the form recalls *Helicarion* much more than *Paryphanta*.

ILLONESTA LOUISIADARUM Möllendorff, 1899.

1899. *Paryphanta louisadarum* Möllendorff, Nachr. d. malak. Gesell., 31st Year, p. 89, May-June No. Louisiade Group. Figd. Syst. Conch. Cab. Bd. I., Abth., xii.B., p. 7, pl. 3, figs. 1-3, dated 13. xi. 1902.

ILLONESTA STRIATA Fulton, 1902.

1902. *Paryphanta striata* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 182, March. River Arva (= Aroa), Papua (Emil Weiske).

ILLONESTA ELEGANS Fulton, 1902.

1902. *Paryphanta elegans* Fulton, Ann. Mag. Nat. Hist., Ser. 7, Vol. ix., p. 182, March. River Arva (= Aroa), Papua (Emil Weiske).

SLUGS.

Although there may a large slug fauna this is entirely unknown, the only record being one of *Atopos prismatica* Tapparone-Canefri, a Sorong species, from the Fly River.

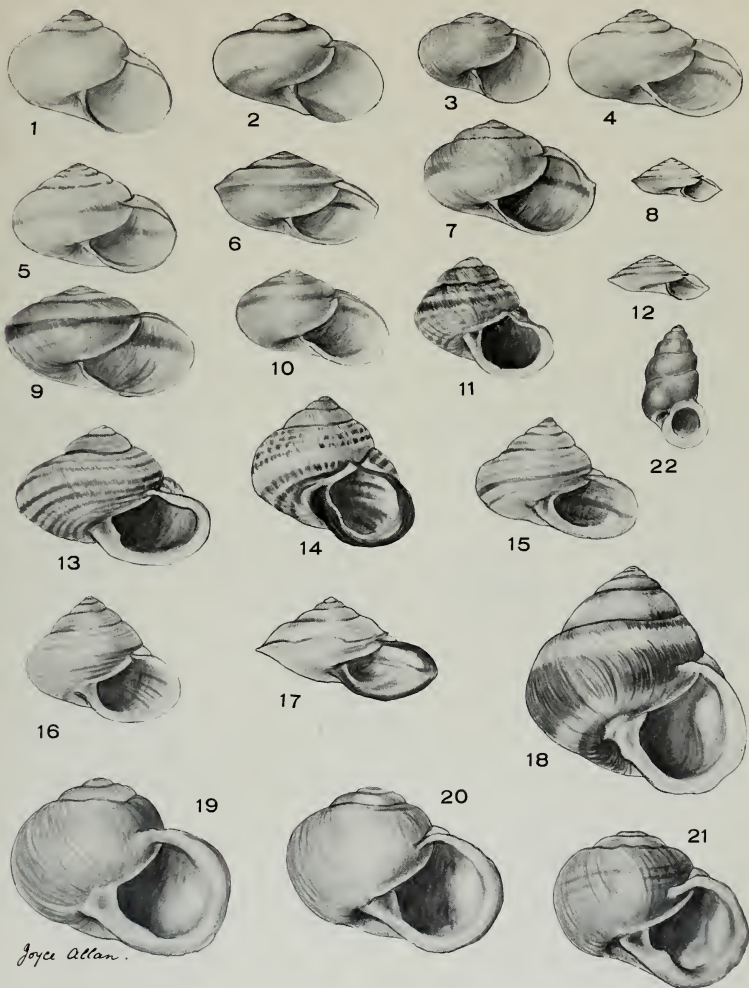
EXPLANATION OF PLATE III.

- Fig. 1. *Xesta oldhamiana* Iredale.
 ,, 2. *Xesta interjecta* Iredale.
 ,, 3. *Amenixesta fifensis* Iredale.
 ,, 4. *Xesta cornecerea* Iredale.
 ,, 5. *Xesta dinawa nubiliisinus* Iredale.
 ,, 6. *Zagmena jansonii* Smith.
 ,, 7. *Xesta dinawa* Iredale.
 ,, 8. *Necvidena froggatti* Iredale.
 ,, 9. *Xesta complicata* Iredale.
 ,, 10. *Amenixesta mita* Iredale.
 ,, 11. *Canefriula cynthia* Fulton.
 ,, 12. *Rosselidena cornea* Hedley.
 ,, 13. *Canefriula rolandi* Iredale.
 ,, 14. *Letitia subglobosa* Fulton.
 ,, 15. *Canefriula cingulata* Hedley.
 ,, 16. *Canefriula sicula* Brazier.
 ,, 17. *Claudettea bevani* Hedley.
 ,, 18. *Kendallena qualis* Iredale.
 ,, 19. *Goldielix mita* Iredale.
 ,, 20. *Goldielix meraca* Iredale.
 ,, 21. *Goldielix neptis* Iredale.
 ,, 22. *Brazieria aignanensis* Hedley.

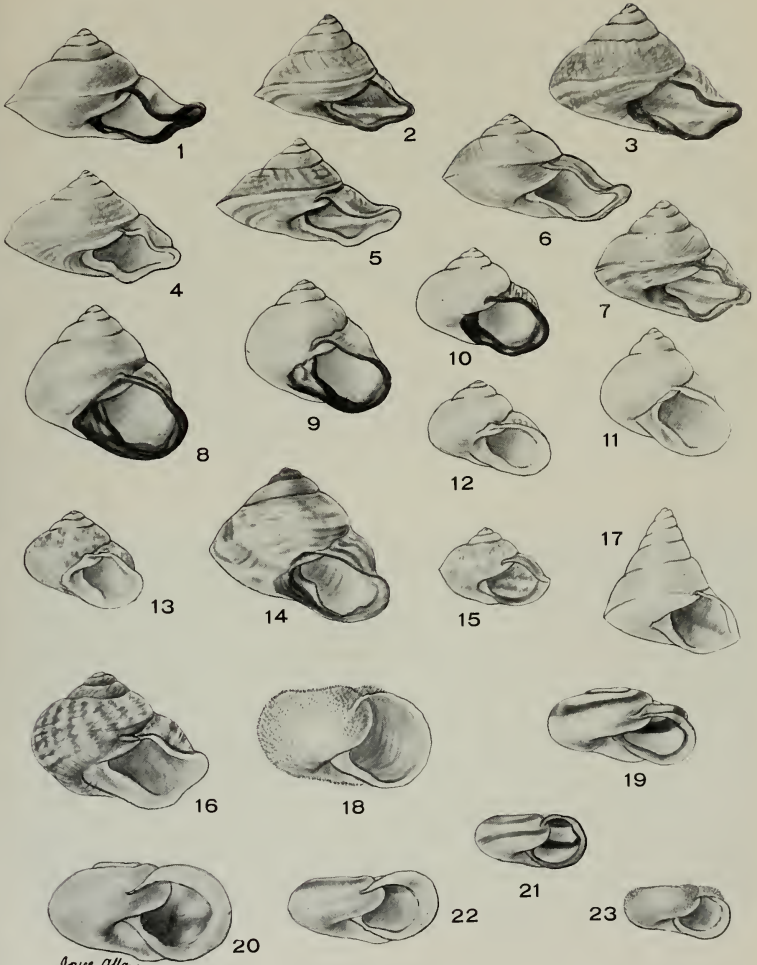
EXPLANATION OF PLATE IV.

- Fig. 1. *Rhynchotrochus taylorianus* Adams & Reeve.
 ,, 2. *Rhynchotrochus monticola* Iredale.
 ,, 3. *Rhynchotrochus praefectus* Iredale.
 ,, 4. *Rhynchotrochus sinucola* Iredale.
 ,, 5. *Rhynchotrochus vallicola* Iredale.
 ,, 6. *Rhynchotrochus extraneus* Iredale.
 ,, 7. *Rhynchotrochus mysticus* Iredale.
 ,, 8. *Letitia adjuncta* Iredale.
 ,, 9. *Letitia interrupta* Iredale.
 ,, 10. *Letitia moturina* Iredale.
 ,, 11. *Letitia albolabris* Hedley.

- „ 12. *Letitia maria* Iredale.
 - „ 13. *Letitia degener* Iredale.
 - „ 14. *Caroletitia vilia* Iredale.
 - „ 15. *Henga deliciosa* Iredale.
 - „ 16. *Violenga misima* Iredale.
 - „ 17. *Tepomusa confirma* Iredale.
 - „ 18. *Disteustoma nema* Iredale.
 - „ 19. *Cristigibba fulgida* Iredale.
 - „ 20. *Spatiolabia mackayi* Iredale.
 - „ 21. *Spatiolabia dulcior* Iredale.
 - „ 22. *Spatiolabia permixta* Iredale.
 - „ 23. *Setogibba enigma* Iredale.
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PAPUAN LAND MOLLUSCA.



Joyce Allan.